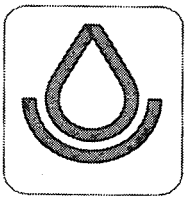
SOIL SURVEY OF

Hampden County, Massachusetts Central Part



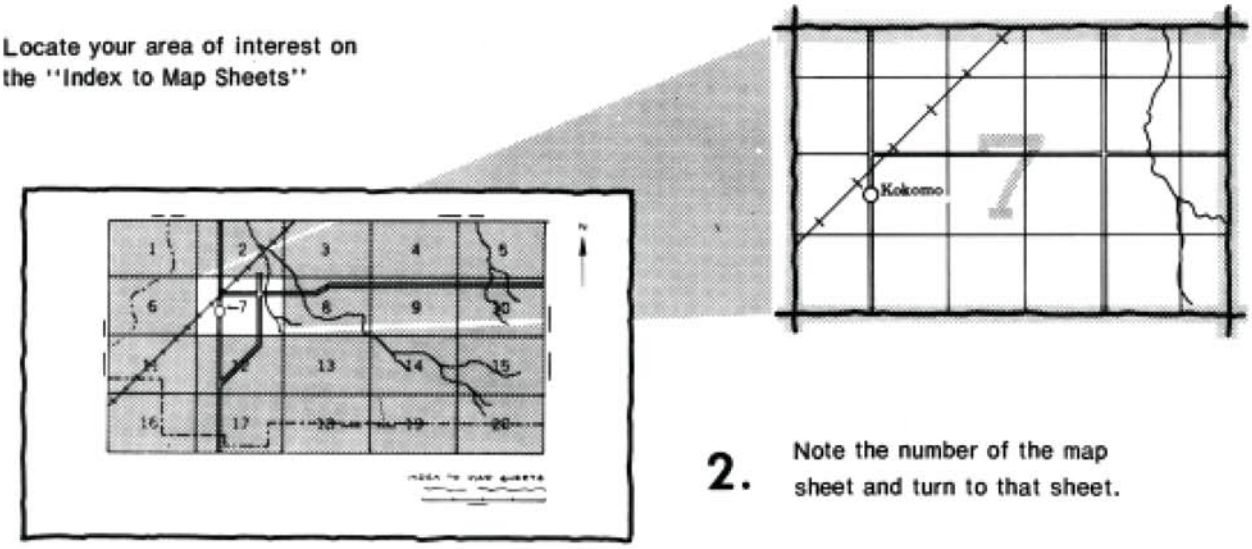
United States Department of Agriculture
Soil Conservation Service

In cooperation with

Massachusetts Agricultural Experiment Station

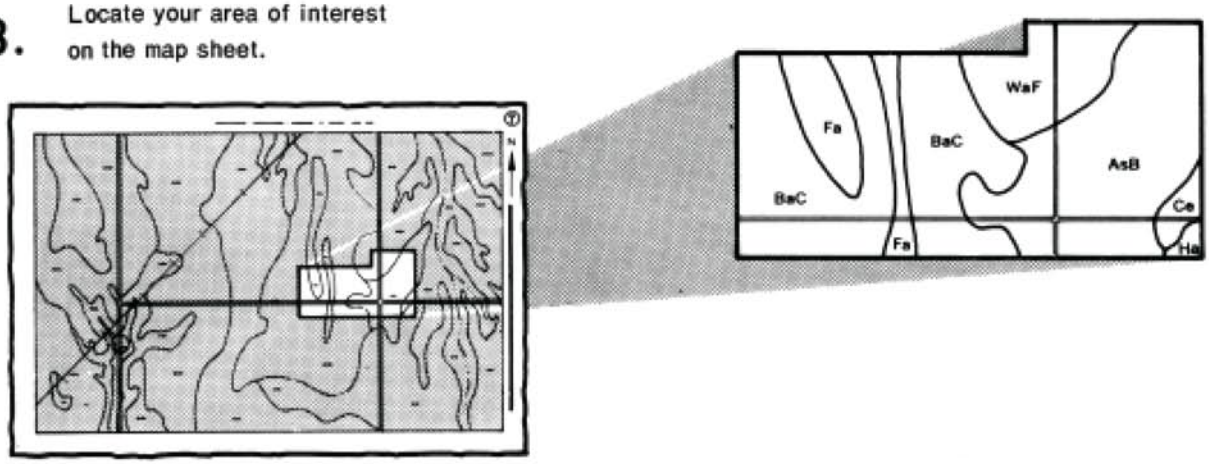
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

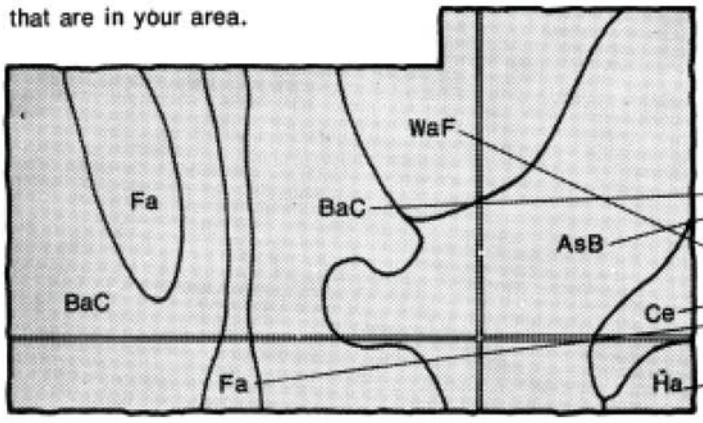


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.



4. List the map unit symbols that are in your area.

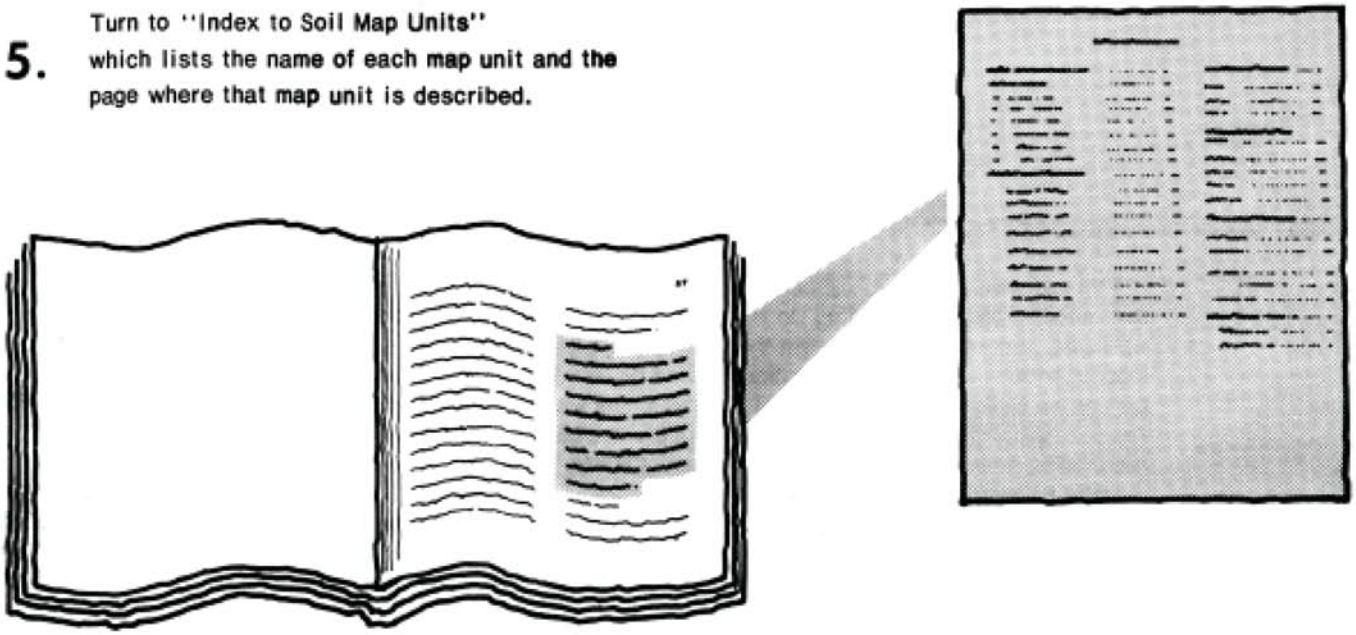


Symbols

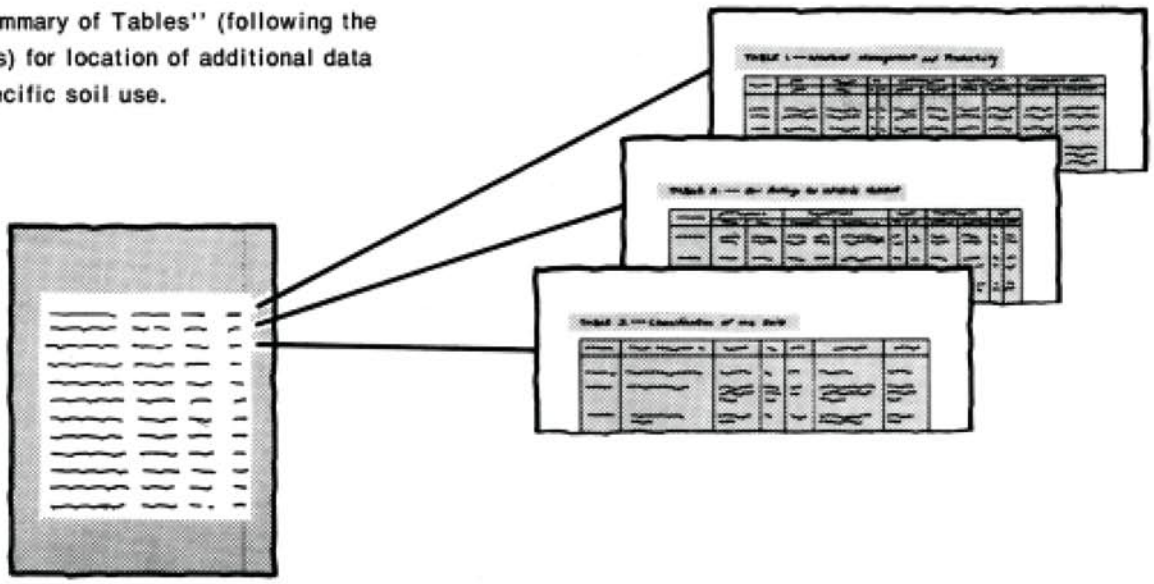
AsB
BaC
Ce
Fa
Ha
WaF

THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1960 to 1973. Soil names and descriptions were approved in 1975. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the Soil Conservation Service and the Massachusetts Agricultural Experiment Station. It is part of the technical assistance furnished to the Hampden Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

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Issued May 1978

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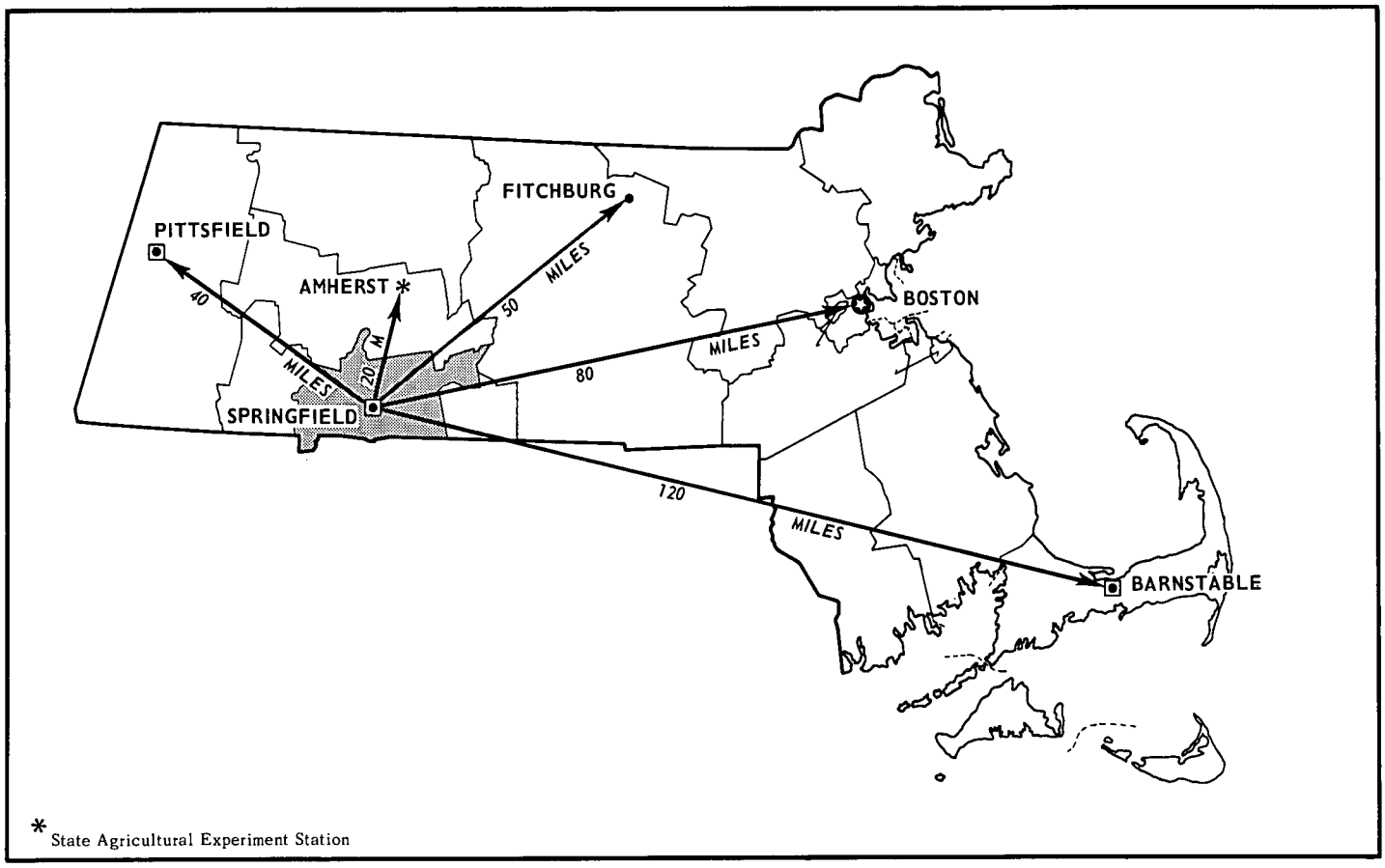
Summary of Tables



Location of Hampden County, Central Part, in Massachusetts.

SOIL SURVEY OF HAMPDEN COUNTY, MASSACHUSETTS CENTRAL PART

By John R. Mott and Eric I. Swenson, Soil Conservation Service

Bruce W. Thompson, James T. Krohelski, Norville Barnes, and Donald C. Fuller, Soil Conservation Service, assisted in the fieldwork

United States Department of Agriculture, Soil Conservation Service, in cooperation with Massachusetts Agricultural Experiment Station

HAMPDEN COUNTY, CENTRAL PART, is in the Connecticut River Valley, in the southwestern part of Massachusetts. (See map on facing page.) Its area is 193,715 acres, or 302.7 square miles. It is bounded on the west by the Berkshire Hills and on the east by low hills of the Worcester Plateau. The main topographic features of the area are the nearly level flood plains and level to gently sloping terraces associated with the Connecticut River and the steep intrusive dikes that rise several hundred feet above the valley floor. The main part of the valley is flanked by undulating to rolling ridges. Elevation ranges from about 40 feet, where the Connecticut River crosses the State line into Connecticut, to about 1,200 feet on Mount Tom in the north-central part of the survey area. The Connecticut River and its two major tributaries, the Westfield River and the Chicopee River, dominate the drainage system of the area.

In 1970 the survey area population was 450,464, according to the U.S. Census, and the population of Springfield was 163,905.

General nature of the area

This section gives general information concerning the area. It discusses settlement, natural resources, climate, and farming.

Settlement

The first settlements in the area were established in 1636, at the present site of Springfield, by colonists from eastern Massachusetts. Later settlements were established by colonists from Connecticut. Eastern Massachusetts and Connecticut continued to be the major sources of settlers for about 200 years. After about 1850 many European immigrants sought jobs in newly established industries in Springfield, Westfield, Holyoke, and Chicopee.

Natural resources

Soil is one of the most important natural resources in the area. The primary uses of the soils have shifted from the production of crops and livestock to industrial and residential building sites and sources of construction materials.

Mineral resources are basalt or traprock, sandstone, and sand and gravel. The major source of traprock in the area is a large quarry on East Mountain, in Westfield and West Springfield. Traprock is used primarily in highway construction and as railroad roadbed ballast. Red sandstone, known locally as "redstone," is quarried in limited quantities in East Longmeadow for ornamental masonry. Sand and gravel deposits are excavated in many places throughout the area for use as general construction materials.

Changes in the use of the water resources parallel the changes in soil use. The primary transportation routes of the early settlers were major streams. These water resources are now used principally for recreation and, in some places, for municipal water supply. During the 1800's, the network of natural waterways was augmented by a short-lived canal system which terminated at New Haven, Connecticut, and Northampton, Massachusetts.

Farming

The fertile soils of the Connecticut River Valley brought settlers from eastern Massachusetts to this area. The early settlements were on the flood plains and terraces of the main valley. Settlements gradually spread to the tributary valleys and then later to the hilly uplands.

General farming—production of hay, corn, wheat, oats, rye, vegetables, fruit, and livestock—reached its peak about 1860. Shortly thereafter a rapid decline in both crop production and farm acreage began, and there was a shift from general farming to the production of high-value specialty crops—shade-grown tobacco, onions, potatoes, and asparagus. Shade-grown tobacco was the most prominent of the specialty crops until about 1920 when the acreage

devoted to the tobacco started to decline. Demand for urban and industrial building sites increased land values to the point where it was difficult to keep the land for farming. Most of the existing farmland is used for high-value truck crops, fruit, hay, and nursery stock for local markets. A few dairy farms remain.

Climate

Winters are cold and summers are moderately warm with occasional hot spells in Hampden County, Massachusetts, Central Part. Hills are markedly cooler than lowlands. Precipitation is well distributed throughout the year and is nearly always adequate for all crops. Winter snows occur frequently, occasionally as blizzards, and cover the ground much of the time.

Rainfall is normally adequate for all crops in most of the area, but the lower available water capacity of the sandy soils results in several brief droughts nearly every year. Truck crops are commonly grown with some supplemental irrigation.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Springfield for the period 1951 to 1973. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 29 degrees F, and the average daily minimum temperature is 20 degrees. The lowest temperature on record, which occurred at Springfield on January 5, 1964, is -15 degrees. In summer the average temperature is 71 degrees, and the average daily maximum temperature is 82 degrees. The highest recorded temperature, which occurred on September 2, 1953, is 102 degrees.

Growing degree days, shown in table 1, are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 23 inches, or 52 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 18 inches. The heaviest 1-day rainfall during the period of record was 11.47 inches at Springfield on August 19, 1955. Thunderstorms occur on about 22 days each year, and most occur in summer.

Average seasonal snowfall is 40 inches. The greatest snow depth at any one time during the period of record was 30 inches. On the average, 25 days have at least 1 inch of snow on the ground, but the number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The percentage of possible sunshine is 61 in summer and 54 in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, in April.

Climatic data in this section were specially prepared for the Soil Conservation Service by the National Climatic Center, Asheville, North Carolina.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed in-

formation then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

Deep soils that have a moderately coarse textured or medium textured surface layer and subsoil and a firm to friable substratum

The three map units in this group make up about 27 percent of the survey area. They are on glaciated uplands in the western and eastern parts of the survey area. Most of the acreage is in woodland; a large part is used for farming and sites for rural homes.

1. Charlton-Woodbridge-Paxton

Nearly level to steep, well drained and moderately well drained soils on glaciated uplands

The largest area of this map unit is in the southeastern part of the survey area in the towns of Hampden and Wilbraham. Smaller areas are in the town of Palmer and the city of Westfield. Stones and boulders are scattered 5 to 50 feet apart on the surface in many areas of this unit. The soils in this unit formed in loamy glacial till (fig. 1).

This map unit makes up about 13 percent of the survey area. It is about 40 percent Charlton soils, 25 percent Woodbridge soils, 20 percent Paxton soils, and 15 percent minor soils.

Charlton soils are on hills and ridges. These soils are well drained. They have a friable, moderately coarse textured subsoil and substratum.

Woodbridge soils are in concave positions at the base of slopes or on hillsides. These soils are moderately well drained. They have a very firm substratum that restricts movement of water and development of roots.

Paxton soils are on hills and ridges. These soils are well drained. They have a very firm substratum that restricts movement of water and development of roots.

Among the minor soils in this map unit are Gloucester, Hollis, Narragansett, Ridgebury, Whitman, and Muck. The Gloucester and Hollis soils are somewhat excessively drained, Ridgebury soils are poorly drained, Whitman soils are very poorly drained. Muck soils are very poorly drained, and Narragansett soils are well drained. Gloucester, Hollis, and Narragansett soils are on hills and ridges. Ridgebury, Whitman, and Muck soils are in lower concave positions and depressions. Ridgebury and Whitman soils have a very firm substratum. Gloucester and Narragansett soils have a friable substratum. Hollis soils are shallow to bedrock. Muck soils developed in organic deposits.

Much of the acreage of this map unit is in woodland or is idle. Some acreage is used for dairy farming or as sites for rural homes (fig. 2).

The main limitations for the use of the soils are stoniness, slope, restricted permeability, and wetness. Few limitations exist for such uses as recreation, woodland, or wildlife habitat. Sites intended for intensive use should be thoroughly investigated.

2. Narragansett-Charlton

Gently sloping to steep, well drained soils on glaciated uplands

Most of this map unit is in the northeastern part of the survey area in the towns of Palmer and Ludlow. Stones and boulders are scattered 5 to 50 feet apart on the surface in many areas of this unit. Some of the soils in this unit formed in loamy glacial till; others formed in a medium textured mantle over glacial till.

This map unit makes up about 8 percent of the survey area. It is about 55 percent Narragansett soils, 15 percent Charlton soils, and 30 percent minor soils.

Narragansett soils are commonly on hills and ridges. These soils are well drained. They have a friable, medium textured subsoil and a friable, moderately coarse to coarse textured substratum.

Charlton soils are commonly on hills and ridges. These soils are well drained. They have a friable, moderately coarse textured subsoil and substratum.

Among the minor soils in this map unit are Paxton, Woodbridge, and Ridgebury. Paxton soils are well drained, Woodbridge soils are moderately well drained, and Ridgebury soils are poorly drained. Paxton soils are on hills and ridges. Woodbridge and Ridgebury soils are in concave areas on sideslopes and at the base of hills. All

of these soils have a very firm substratum and restricted permeability.

Much of the acreage of this map unit is in woodland or is idle. Some acreage is used for dairy farms or sites for rural homes.

Limitations for the use of the soils are stoniness and slope. Few limitations exist for such uses as recreation, woodland, or wildlife habitat. Sites intended for intensive use should be thoroughly investigated.

3. Wethersfield-Meckesville

Gently sloping to moderately steep, well drained soils on glaciated uplands

Most of the areas of this map unit are in the western part of the survey area, in the town of Southwick and the city of Westfield. One area is in the southeastern part of the survey area, in the town of East Longmeadow. Stones and boulders are scattered 5 to 50 feet apart on the surface in many areas of this unit. The soils in this unit formed in reddish loamy glacial till.

This map unit makes up about 6 percent of the survey area. It is about 50 percent Wethersfield soils, 15 percent Meckesville soils, and 35 percent minor soils.

Wethersfield soils are on hills and ridges. These soils are well drained. They have a firm, moderately coarse textured subsoil and a firm substratum.

Meckesville soils are on hills and ridges. These soils are well drained. They have a thick, firm, medium textured and moderately fine textured subsoil and a firm substratum.

Among the minor soils in this map unit are Ludlow, Woodbridge, and Paxton. Ludlow and Woodbridge soils are moderately well drained. Paxton soils are well drained. Ludlow and Woodbridge soils are normally in concave areas on side slopes and at the base of hills. Paxton soils are on hills and ridges. All of these soils have a very firm substratum and restricted permeability.

Much of the acreage of this map unit is in dairy farming, sites for rural homes, or woodland.

Limitations for the use of the soils are stoniness, slope, and restricted permeability. Few limitations exist for such uses as recreation, woodland, or wildlife habitat. Sites intended for intensive use should be thoroughly investigated.

Deep soils that have a moderately coarse textured or coarse textured surface layer and subsoil and a loose, coarse textured substratum

The two map units in this group make up 57 percent of the survey area. They are on glacial outwash terraces in the broad central part of the survey area—the city of Springfield, most of the towns of Agawam, West Springfield, Longmeadow, Ludlow, and Southwick, and the cities of Westfield and Chicopee. Much of the acreage is in urban land; some is in farms, nurseries, and recreation.

4. Hinckley-Windsor-Merrimac

Nearly level to steep, excessively drained and somewhat excessively drained soils on glacial outwash terraces

Several large areas of this map unit are in the east-central and west-central parts of the survey area. Other areas are in the town of Palmer and the western parts of the town of Southwick and the city of Westfield. The topography is generally nearly level to moderately sloping. The soils in this unit formed in water-sorted deposits of glacial outwash (fig. 3).

This map unit makes up about 37 percent of the survey area. It is about 30 percent Hinckley soils, 20 percent Windsor soils, 20 percent Merrimac soils, and 30 percent minor soils.

Hinckley soils are excessively drained and very permeable and retain small amounts of water for plant use. They have a gravelly, coarse textured subsoil and a stratified sand and gravel substratum. These soils are on broad, nearly level areas.

Windsor soils are excessively drained, very permeable and retain small amounts of water for plant use. They have a coarse textured subsoil and a substratum that contains little or no gravel. These soils are on broad, nearly level areas.

Merrimac soils are somewhat excessively drained, very permeable and retain small amounts of water for plant use. They have a gravelly, coarse textured subsoil and a stratified sand and gravel substratum. These soils are on broad, nearly level areas.

Among the minor soils in this map unit are Sudbury, Wareham, and Agawam soils. Sudbury and Wareham soils are commonly located in depressions, which are scattered among the major soils. Agawam soils are in scattered areas. Sudbury soils are moderately well drained, Wareham soils are poorly drained, and Agawam soils are well drained. Sudbury and Wareham soils have a sand and gravel substratum. Agawam soils have a sand substratum.

Some of the acreage of this map unit is in Urban land, sites for rural homes, woodland, or is idle. A little acreage, in the western part of the survey area, is used for irrigated truck farms, nursery stock, and high value field crops.

The main limitation for farm use is droughtiness. Nonfarm uses are limited by coarse texture and rapid permeability. Sites intended for intensive use should be thoroughly investigated.

5. Urban land-Hinckley-Windsor

Urban land and nearly level to moderately sloping, excessively drained soils on glacial outwash terraces

Most of this map unit is in the central part of the survey area. One area is in the west central part. The soils in this unit formed in water-sorted deposits of glacial outwash (fig. 4).

This map unit makes up about 20 percent of the survey area. It is about 60 percent Urban land, 15 percent Hinckley soils, 10 percent Windsor soils, and 15 percent minor soils.

Urban land is so covered by urban works and structures that identification of the soils is not possible. Most of the foundation material is Hinckley or Windsor soils that have been obscured, smoothed, filled in, or destroyed by construction of urban facilities.

Hinckley soils are rapidly or very rapidly permeable. These soils are excessively drained. They have a gravelly subsoil and a stratified sand and gravel substratum.

Windsor soils are rapidly or very rapidly permeable. These soils are excessively drained. They have a coarse textured subsoil and substratum that contain little or no gravel.

Among the minor soils in this map unit are Merrimac, Wethersfield, Paxton, and Sudbury. Terrace escarpments are also present in places. Merrimac soils are somewhat excessively drained, Wethersfield and Paxton soils are well drained, and Sudbury soils are moderately well drained. Wethersfield and Paxton soils have a firm substratum. Merrimac and Sudbury soils have a sand and gravel substratum. Wethersfield and Paxton soils are mainly on the low hills in this map unit. Sudbury soils are commonly in depressions. Merrimac soils are in scattered areas.

Urban land development precludes the use of Urban land for other purposes. The main limitation for farm use is droughtiness. Nonfarm uses are limited by coarse texture and rapid or very rapid permeability. Sites intended for more intensive use should be thoroughly investigated.

Deep soils that have a medium textured, friable surface layer and subsoil

The three map units in this group make up about 7 percent of the survey area. They are on the flood plains of the Connecticut and Westfield Rivers, in the central part of the survey area, and on silty terraces in the south-central part of the survey area. Much of the acreage is Urban land. Some is woodland, and other areas are used for truck gardens, nurseries, and wildlife sanctuaries.

6. Hadley-Winooski-Limerick

Nearly level and gently sloping, well drained, moderately well drained, and poorly drained soils on flood plains

One area of this map unit is along the Westfield River in the western part of the survey area. A second area extends east of the city of Westfield along the Westfield River to the Connecticut River. A third area is along the Connecticut River in the town of Longmeadow. The soils in this unit formed in medium textured alluvium.

This map unit makes up about 4 percent of the survey area. It is about 25 percent Hadley soils, 15 percent Winooski soils, 15 percent Limerick soils, and 45 percent minor soils.

Hadley soils are well drained and located on broad nearly level and gently sloping areas. They have a friable medium textured substratum. They are subject to flooding by stream overflow.

Winooski soils are moderately well drained and located on broad nearly level areas. They have a friable medium textured substratum. They are subject to flooding by stream overflow.

Limerick soils are poorly drained and located in depressions and low lying areas near the rivers. They have a friable medium textured substratum. They are subject to flooding by stream overflow.

Among the minor soils in this map unit are the very poorly drained Saco Variant and Muck, shallow. Saco Variant has a friable, medium textured substratum. Muck, shallow has organic deposits over a medium textured substratum. Urban land is also present to a minor extent. Saco Variant and Muck, shallow, are located in depressions and low lying areas near the rivers.

The soils in this map unit are used for Urban land, woodland, wildlife sanctuaries, nurseries, and truck farms.

The main limitations for the use of these soils are flooding and wetness. Sites intended for intensive use should be thoroughly investigated.

7. Raynham-Belgrade-Buxton Variant

Nearly level and gently sloping, moderately well drained and poorly drained soils on terraces and old lakebeds

This map unit is in the southern part of the town of Agawam, adjoining the State of Connecticut. The soils in this unit formed in medium textured or moderately fine textured outwash or lacustrine deposits.

This map unit makes up about 1 percent of the survey area. It is about 30 percent Raynham soils, 30 percent Belgrade soils, 20 percent Buxton Variant soils, and 20 percent minor soils.

Raynham soils are commonly at low positions and in depressions. These soils are poorly drained. They have a medium textured subsoil and substratum.

Belgrade soils are on terraces. They are moderately well drained. They have a medium textured subsoil and substratum.

Buxton Variant soils are commonly at low positions and in depressions. These soils are moderately well drained. They have a medium textured subsoil and a moderately fine textured substratum.

The substratum of the soils in this map unit is thinly stratified; thus, permeability is restricted.

Among the minor soils in this map unit are Pollux, Wethersfield, and Amostown. Pollux and Wethersfield soils are well drained, and Amostown soils are moderately well drained. Pollux and Amostown soils are on terraces and have a moderately coarse textured subsoil. Wethersfield soils are on low ridges, and they have a very firm substratum.

Major uses of the soils in this map unit are woodland, pasture, wildlife habitat, sites for rural homes, and recreation areas.

The main limitations of the soils are wetness and restricted permeability. Sites intended for intensive use should be thoroughly investigated.

8. Urban land-Hadley-Winooski

Urban land and nearly level to gently sloping, well drained and moderately well drained soils on flood plains

The areas of this map unit are two narrow strips on either side of the Connecticut River, in the central part of the survey area. The soils in this unit formed in medium textured alluvium (fig. 4).

This map unit makes up about 2 percent of the total survey area. It is about 60 percent Urban land, 15 percent Hadley soils, 10 percent Winooski soils, and 15 percent minor soils.

Urban land is occupied by urban works and structures (fig. 5). Most foundation materials are Hadley or Winooski soils that have been obscured, smoothed, filled in, or destroyed by construction of urban facilities.

Hadley soils are well drained and located on broad nearly level and gently sloping areas. They have a friable, medium textured substratum.

Winooski soils are moderately well drained and located on broad nearly level areas. They have a friable, medium textured substratum.

Among the minor soils in this map unit are Limerick, Saco Variant, Podunk, and Muck, shallow. Limerick soils are poorly drained. Scao Variant and Muck, shallow, are very poorly drained. Podunk soils are moderately well drained. Limerick, Saco Variant and Muck, shallow, are located in depressions and low lying areas. Podunk soils are located as nearly level areas. Podunk soils have a moderately coarse textured substratum. Limerick and Saco Variant have a medium textured substratum. Muck, shallow, have organic deposits and a medium textured substratum.

Urban development precludes the use of Urban land for other purposes.

The main limitations for the use of the soils are stream flooding and wetness. Flood control structures protect much of this unit except during high intensity storms. Sites intended for intensive use should be thoroughly investigated.

Shallow and deep soils that have a moderately coarse textured or medium textured, friable surface layer and subsoil

The two map units in this group make up about 9 percent of the survey area. They are on uplands that have a thin mantle of glacial till, or other deposits, over bedrock. Most of the acreage of this group is in woodland, recreation, or wildlife habitat.

9. Brookfield-Brimfield

Gently sloping to moderately steep, deep and shallow, well drained and somewhat excessively drained soils on glaciated uplands

This map unit is in the extreme northeastern part of the survey area in the town of Palmer. Stones and boulders, 5 to 50 feet apart, are scattered in many areas. Rock outcrop is a common feature of this map unit. The soils in this unit formed in glacial till.

This map unit makes up about 1 percent of the survey area. It is about 70 percent Brookfield soils, 10 percent Brimfield soils, and 20 percent minor soils.

Brookfield soils are on hills and ridges and are deep to bedrock. They are well drained and have a friable, moderately coarse textured subsoil and a friable substratum.

Brimfield soils are on hills and ridges and shallow to bedrock. They are somewhat excessively drained and have a friable, moderately coarse textured subsoil.

Among the minor soils in this map unit are Paxton, Woodbridge, and Ridgebury. Paxton soils are well drained, Woodbridge soils are moderately well drained, and Ridgebury soils are poorly drained. Paxton soils are on hills and ridges. Woodbridge soils are in concave positions at the base of slope or on hill sides. Ridgebury soils are in lower concave positions and depressions. These minor soils have a very firm substratum that restricts permeability.

Most of the acreage of this map unit is woodland. Some of the acreage is used as sites for rural homes. A few areas are used for dairy farms.

The main limitations for use of the soils are stoniness, depth to bedrock, and slope. Sites intended for intensive use should be thoroughly investigated.

10. Rock outcrop-Holyoke

Rock outcrop and gently sloping to steep, shallow, somewhat excessively drained soils on glaciated uplands

The largest area of this map unit is a long and relatively narrow area in the central part of the survey area in the communities of Holyoke and West Springfield. A smaller area is in the town of Southwick. Stones and boulders, 5 to 50 feet apart, are scattered over the surface in many areas of this map unit. The soils in this unit formed in windblown material mixed with glacial till (fig. 6).

This map unit makes up about 8 percent of the survey area. It is about 30 percent Rock outcrop, 20 percent Holyoke soils, and 50 percent minor soils.

Rock outcrop consist of areas that are primarily exposed bedrock.

Holyoke soils are somewhat excessively drained shallow to bedrock soils on hills and ridges. They have a thin friable, medium textured subsoil. Bedrock is at a depth of 10 to 20 inches.

Among the minor soils in this map unit are Charlton, Wethersfield, Paxton, Ludlow, Ridgebury, and Peat.

These minor soils are deep to bedrock. Charlton, Wethersfield, and Paxton soils are well drained and located on hill and ridges. Ludlow soils are moderately well drained and located in lower concave positions and Ridgebury soils and Peat are located in low lying areas and depresssions. Peat are organic deposits and the other minor soils have medium textural subsoils. Wethersfield, Paxton, Ludlow, and Ridgebury soils have a firm or very firm substratum that restricts permeability. Charlton soils have a friable substratum.

Most of the acreage of this map unit is woodland or is used for recreational purposes.

The main limitations to use of the soils are shallow depth to bedrock, slope, and stoniness. Sites intended for intensive use should be thoroughly investigated.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have profiles almost alike make up a *soil series.* Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped. The Ludlow series, for example, was named for the town of Ludlow in Hampden County.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Ludlow loam, 3 to 8 percent slopes, is one of several phases within the Ludlow series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes, soil associations, and undifferentiated groups.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Charlton-Rock outcrop-Hollis complex, 3 to 15 percent slopes, is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Urban land-Hadley-Winooski association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because there is little value in separating them. The pattern and proportion of the soils are not uniform. An area shown on the map has at least one of the dominant (named) soils or may have all of them. Charlton and Narragansett extremely stony soils, steep, is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Rock outcrop is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 4, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

AgA—Agawam fine sandy loam, 0 to 3 percent slopes. This deep, nearly level soil is well drained. It is on terraces. Slopes are smooth and are commonly 200 to 500 feet long. Areas are irregular in shape and range from 5 to 30 acres in size.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown fine sandy loam about 10 inches thick. The subsoil is very friable, yellowish brown fine sandy loam 15 inches thick. The sub-

stratum, to a depth of 60 inches, is very friable, light olive brown loamy fine sand and olive fine sand.

Permeability is moderately rapid in the upper part of the subsoil, moderately rapid or rapid in the lower part of the subsoil, and rapid in the substratum. Available water capacity is moderate. Roots grow into the substratum. Reaction, unless limed, is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ninigret and Wareham soils. Included soils make up about 20 percent of this unit.

Much of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees; some is used for homesites.

This soil has good potential for farming, woodland, woodland and openland wildlife habitat, and most urban uses. It has poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small area is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, sugar maple, and red pine.

This soil has few limitations for most urban uses. the moderately rapid or rapid permeability limits sanitary waste disposal facilities. Capability class I.

AgB—Agawam fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on terraces. Slopes are smooth and convex and are commonly 200 to 800 feet long. Areas range from 10 to 50 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown fine sandy loam 15 inches thick. The substratum, to a depth of 60 inches, is very friable light olive brown loamy fine sand and olive fine sand.

Permeability is moderately rapid in the upper part of the subsoil, moderately rapid or rapid in the lower part of the subsoil, and rapid in the substratum. Roots grow into the very friable substratum. Reaction, unless limed, is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ninigret and Wareham soils. Included soils make up about 15 percent of this unit.

Much of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees, and some is used for residential developments or individual homesites.

This soil has good potential for farming, woodland and openland wildlife habitat, and most urban uses. It has poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, sugar maple, and red pine.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the moderately rapid or rapid permeability of the substratum. Capability subclass IIe.

AgC—Agawam fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on terraces. Slopes are smooth and convex and are commonly 200 to 400 feet long. Areas range form 10 to 40 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown fine sandy loam 12 inches thick. The substratum, to a depth of 60 inches, is very friable, light olive brown loamy fine sand and olive fine sand.

Permeability is moderately rapid in the upper part of the subsoil, moderately rapid or rapid in the lower part of the subsoil, and rapid in the substratum. Available water capacity is moderate. Roots grow into the very friable substratum. Reaction, unless limed, is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ninigret soils. Included soils make up about 15 percent of this unit.

Much of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees; some is used for homesites.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, sugar maple, and red pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope and the moderately rapid or rapid permeability. Capability subclass IIIe.

AmB—Amostown fine sandy loam, 0 to 6 percent slopes. This nearly level to gently sloping soil is deep and moderately well drained. It is on terraces and deltas. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 10 to 50 acres in size and are irregular in shape.

In a typical profile in an area that was once cultivated, the surface layer is very friable, dark brown fine sandy loam about 10 inches thick. The subsoil is friable, dark yellowish brown and yellowish brown fine sandy loam and light olive brown sandy loam 22 inches thick. The substratum, to a depth of 60 inches, is firm, grayish brown silt loam that is slightly sticky and slightly plastic when wet. The lower part of the subsoil and the substratum have prominent yellowish red and brown mottles.

Permeability is moderately rapid in the subsoil and moderate to slow in the substratum. Available water capacity is high. This soil has a seasonal high water table at a depth of 12 to 30 inches for about 5 months in winter and early spring. Roots grow to the firm substratum. Reaction is very strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Pollux and Enosburg soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees; some is used for homesites.

This soil had good potential for farming, woodland, and woodland and openland wildlife habitat. It has fair to poor potential for most urban uses and poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Wetness is the major hazard to use. The hazard of erosion is slight where this soil is nearly level and moderate where it is gently sloping. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, incorporating grasses and legumes in the cropping system, and installing subsurface drains where needed reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the seasonal high water table and moderately slow permeability of the substratum. Capability subclass IIw.

BaB—Belgrade silt loam, 0 to 8 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on lakebed deposits in the larger valleys. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 10 to 50 acres in size and are long, narrow, or irregular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, dark brown silt loam about 12 inches thick. The subsoil is very friable or friable light olive brown and olive silt loam 16 inches thick; the lower part has brown and yellowish red mottles. The substratum, to a depth of 60 inches, is alternating thin layers of loose, gray very fine sand and friable to firm, gray silt. It has red mottles.

Permeability is moderate in the subsoil and moderate to moderately slow in the substratum. Available water capacity is high. A seasonal high water table, to a depth of 18 to 28 inches, limits the growth of roots. Reaction is slightly acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Unadilla and Raynham soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees; some is used for homesites.

This soil has good potential for farming, woodland, and woodland and openland wildlife habitat. It has poor potential for most urban uses, for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight where this soil is nearly level and moderate where it is gently sloping. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, incorporating grasses and legumes in the cropping system, and installing subsurface drains where needed reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for urban uses and most sanitary waste disposal facilities by the seasonal high water table. Capability subclass IIw.

BgB—Broadbrook gravelly silt loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is most commonly on the tops and upper parts of drumloidal hills. Slopes are smooth and slightly convex

and are 200 to 400 feet long. Areas range from rectangles of 5 to 15 acres to ovals of 10 to 40 acres.

In a typical profile in a formerly cultivated area, the surface layer is very friable, very dark grayish brown gravelly silt loam about 9 inches thick. The subsoil is friable, brown gravelly silt loam about 11 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included in mapping are a few small areas of Broadbrook soils that are nearly level. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees; some is used for homesites.

This soil has good potential for farming, woodland, and woodland and openland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by a high water table of short duration and slow permeability of the substratum. Capability subclass IIe.

BgC—Broadbrook gravelly silt loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the upper parts of drumloidal hills. Slopes are smooth and slightly convex and are commonly 200 to 600 feet long. Areas range from rectangles of 10 to 25 acres to ovals of 10 to 50 acres.

In a typical profile in an area that was once cultivated, the surface layer is very friable, very dark grayish brown gravelly silt loam about 8 inches thick. The subsoil is friable, brown gravelly silt loam about 12 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included are a few small areas of moderately steep Broadbrook soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been cultivated to trees; some is used for homesites.

This soil has good potential for farming, woodland, and woodland and openland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope and a high water table of short duration. Capability subclass IIIe.

BhB—Broadbrook very stony silt loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper parts of drumloidal hills. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Stones are scattered 20 to 50 feet apart on the surface. Areas are 10 to 75 acres in size and are oval or irregular in shape.

In a typical profile, the surface layer is very friable, very dark grayish brown gravelly silt loam about 9 inches thick. The subsoil is friable, brown gravelly silt loam about 11 inches thick. The substratum, to a depth of 60 inches, is very firm, and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is used for homesites, and some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming. It has good potential for woodland and for woodland wildlife habitat and poor potential for openland and wetland wildlife habitat. It has fair potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope, large stones, and a high water table of short duration. Capability subclass VIs.

BhC—Broadbrook very stony silt loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the sides of drumloidal hills. Slopes are smooth and slightly convex and are commonly 200 to 700 feet long. Stones are scattered 20 to 50 feet apart on the surface. Areas are 10 to 100 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown gravelly silt loam about 6 inches thick. The subsoil is friable, brown gravelly silt loam about 14 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils that are mottled in the subsoil. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and poor to fair potential for sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by slope, large stones, and a high water table of short duration. Capability subclass VIs.

BhD—Broadbrook very stony silt loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on the sides of drumloidal hills. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Stones are scattered 20 to 50 feet apart on the surface. Areas range from 20 to 40 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown gravelly silt loam about 4 inches thick. The subsoil is friable, brown gravelly silt loam about 16 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 18 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

Slope limits the use of this soil for urban development and sanitary waste disposal facilities. Capability subclass VIs.

BkB—Broadbrook extremely stony silt loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper parts of drumloidal hills. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Areas range from 30 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown gravelly silt loam about 6 inches thick. The subsoil is friable, brown gravelly

silt loam about 14 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, a high water table of short duration, and slow permeability of the substratum. Capability subclass VIIs.

BkC—Broadbrook extremely stony silt loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the sides of drumloidal hills. Slopes are smooth and slightly convex and are commonly 100 to 700 feet long. Areas range from 20 to 70 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown gravelly silt loam about 6 inches thick. The subsoil is friable, brown gravelly silt loam about 14 inches thick. The substratum, to a depth of 60 inches, is very firm and brittle, dark brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. Growth of roots is restricted to a depth of about 20 inches by the very firm substratum. Reaction ranges from very strongly acid to medium acid. A perched high water table is present for short periods during winter and spring and after prolonged rains.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included are a few small areas of moderately steep Broadbrook soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by large stones, a high water table of short duration, and by slope. Capability subclass VIIs.

BoB—Brookfield extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is most commonly on ridges and hills. Slopes are generally smooth and convex and are 100 to 300 feet long. Areas range from 5 to 25 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown fine sandy loam 3 inches thick. The subsoil is very friable or friable, dark reddish brown, reddish brown, and brown gravelly fine sandy loam 27 inches thick. The substratum, to a depth of 60 inches, is friable, single grained, olive brown gravelly loamy sand.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, sugar maple, and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones and the moderate or moderately rapid permeability. Capability subclass VIIs.

BoC—Brookfield extremely stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on ridges and hills. Slopes are generally smooth and convex and are 200 to 500 feet long. Areas range from 20 to 75 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown fine sandy loam 2 inches thick. The subsoil is mainly friable, reddish brown and brown gravelly fine sandy loam 28 inches thick. The substratum, to a depth of 60 inches, is friable, single grained, olive brown gravelly loamy sand.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the fria-

ble substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture, because of the stones on the surface.

This soil is suited to trees and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, sugar maple, and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones and the moderate or moderately rapid permeability. Capability subclass VIIs.

BoD—Brookfield extremely stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on ridges and hills. Slopes are generally smooth and convex and are 200 to 700 feet long. Areas range from 20 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown fine sandy loam 1 inch thick. The subsoil is very friable or friable, dark reddish brown, reddish brown, and brown gravelly fine sandy loam 29 inches thick. The substratum, to a depth of 60 inches, is friable, single grained, olive brown gravelly loamy sand.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture, because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, sugar maple, and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, moderately steep slopes, and the moderate or moderately rapid permeability. Capability subclass VIIs.

BrC—Brookfield-Rock outcrop-Brimfield complex, 3 to 15 percent slopes. This complex of undulating and rolling soils is on ridges and hills. Slopes are 100 to 300 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

About 40 percent of this complex is deep, well drained Brookfield soils, 25 percent is Rock outcrop, and 20 percent is shallow, somewhat excessively drained Brimfield soils. The Brookfield soils are between the areas of Brimfield soils, and the Rock outcrop is adjacent to the Brimfield soils. The outcrops are exposed gneiss and pyritiferous schist bedrock. They are less than 100 feet apart.

In a typical profile of a Brookfield soil, the surface layer is very friable, very dark brown fine sandy loam 2 inches thick. The subsoil is very friable or friable, dark reddish brown, reddish brown, and brown gravelly fine sandy loam 28 inches thick. The substratum, to a depth of 60 inches, is friable, single grained, olive brown gravelly loamy sand.

Permeability of Brookfield soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Brimfield soil, the surface layer is very friable, dark reddish brown fine sandy loam about 2 inches thick. The subsoil is slightly firm to friable, yellowish red and brown fine sandy loam. Schist and gneiss bedrock is at a depth of 14 inches.

Permeability of Brimfield soils is moderate or moderately rapid. Available water capacity is very low. Plant roots extend to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge soils, Ridgebury soils, and moderately deep, well drained soils that have bedrock at a depth of 20 to 40 inches. Included soils make up about 15 percent of this complex.

The soils in this complex have poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. They have better potential for woodland and woodland wildlife habitat than for other uses.

This complex is not suited to farming because of the stones on the surface, outcrops of rock, and shallow depth to bedrock.

Brookfield soils are suited to trees. Productivity is moderate. Brimfield soils are poorly suited to trees. Productivity is low. Important tree species on the soils in this complex are northern red oak, eastern white pine, and sugar maple. Most of the acreage of this complex is wooded.

The soils of this complex are limited for most urban uses and for most sanitary waste disposal facilities by the shallow depth to bedrock, large stones, and the moderate or moderately rapid permeability. Capability subclass VIIs.

BrD—Brookfield-Rock outcrop-Brimfield complex, 15 to 25 percent slopes. This hilly complex is on hills and

ridges. Slopes are 200 to 500 feet long. Areas range from 20 to 80 or more acres in size and are irregular in shape.

About 40 percent of this complex is deep, well drained Brookfield soils, 25 percent is Rock outcrop, and 20 percent is shallow somewhat excessively drained Brimfield soils. The Brookfield soils are between the areas of Brimfield soils, and the Rock outcrops are adjacent to the areas of Brimfield soils. The outcrops are exposed gneiss and pyritiferous schist bedrock. They are less than 100 feet apart. The Brookfield and Brimfield soils have stones scattered 5 to 20 feet apart on the surface.

In a typical profile of a Brookfield soil in a wooded area, the surface layer is very friable, very dark brown fine sandy loam 1 inch thick. The subsoil is very friable or friable, dark reddish brown, reddish brown, and brown gravelly fine sandy loam 29 inches thick. The substratum, to a depth of 60 inches, is friable, olive brown gravelly loamy sand.

Permeability of Brookfield soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Brimfield soil, the surface layer is very friable, dark reddish brown fine sandy loam about 2 inches thick. The subsoil is slightly firm to friable, yellowish red and brown fine sandy loam. Schist and gneiss bedrock is at a depth of 13 inches.

Permeability of Brimfield soils is moderate or moderately rapid. Available water capacity is very low. Plant roots extend to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge soils; moderately sloping Ridgebury soils; and moderately deep, well drained soils that have bedrock at a depth of 20 to 40 inches. Included soils make up about 15 percent of this complex.

The soils of this complex have poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. They have better potential for woodland and woodland wildlife habitat than for other uses.

This complex is not suited to farming because of the stones on the surface, outcrops of rock, and shallow depth to bedrock.

The Brookfield soils in this complex are suited to trees. Productivity is moderate. The Brimfield soils are poorly suited to trees. Productivity is low. Important tree species on the soils in this complex are northern red oak, eastern white pine, and sugar maple. Most of the acreage of this complex is wooded.

The soils of this complex have limitations for most urban uses and for most sanitary waste disposal facilities because of the slope, large stones, shallow depth to bedrock, and moderate or moderately rapid permeability. Capability subclass VIIs.

BuB—Buxton Variant silt loam, 0 to 8 percent slopes. This nearly level to gently sloping soil is deep and moderately well drained. It formed in lakebed deposits in the larger valleys. Slopes are smooth and convex and are commonly 100 to 500 feet long. Areas range from 5 to 30 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is very friable, very dark grayish brown silt loam about 9 inches thick. The subsoil, to a depth of 24 inches, is friable and slightly firm, brown, light olive brown, and grayish brown silt loam. The substratum, to a depth of 60 inches, is thin layers of olive brown, yellowish brown, olive gray, and grayish brown, firm silty clay. The lower part of the subsoil and the upper part of the substratum have brown and gray mottles.

Permeability is moderate or moderately slow in the subsoil and slow in the substratum. Available water capacity is high. Growth of roots is restricted by a seasonal high water table in the lower part of the subsoil. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scantic Variant and Belgrade soils. Also included are a few small areas of soils that are similar to this Buxton soil but are free of mottling in the subsoil. Included soils make up about 15 percent of this unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for residential use, and some has reverted to woodland.

This soil has good potential for farming, woodland and openland and woodland wildlife habitat. It has poor potential for most urban use, most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Wetness is the major limitation. The hazard of erosion is slight where this soil is nearly level and moderate where it is gently sloping. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and use of grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Surface drainage is needed in places.

This soil is well suited to pasture and hay. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is suited to trees. Only a small acreage is presently wooded. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the slow permeability of the substratum, a seasonal high water table and a high potential for frost action. Capability subclass IIw.

CaA—Carver loamy coarse sand, 0 to 3 percent slopes. This nearly level soil is deep and excessively drained. It is on terraces and deltas. Slopes are smooth and flat and are 100 to 500 feet long. Areas range from 5 to 30 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, dark brown loamy coarse sand about 11 inches thick. The subsoil is loose, single grained, yellowish brown loamy coarse sand and coarse sand 14 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, pale brown coarse sand.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley and Deerfield soils. Included soils make up about 20 percent of this map unit.

Much of the acreage of this soil is in urban use. Some acreage is in scrubby woodland.

This soil has poor potential for farming, woodland, and wildlife habitat. It has good potential for urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to farming because of droughtiness. Fertilizer is quickly leached. The hazard of erosion is slight. Important conservation management practices are irrigation, frequent application of fertilizer, addition of organic matter to the plow layer, and use of cover crops.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and red pine.

This soil has few limitations for most urban uses. Lawns may be difficult to establish in urban areas because of droughtiness. It has limitations for most sanitary waste disposal facilities by the very rapid permeability. Capability subclass IVs.

CaB—Carver loamy coarse sand, 3 to 8 percent slopes. This gently sloping soil is deep and excessively drained. It is on terraces and deltas. Slopes are smooth and convex and are 100 to 300 feet long. Areas range from 5 to 20 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, dark brown loamy coarse sand about 8 inches thick. The subsoil is loose, single grained, yellowish brown loamy coarse sand and coarse sand 17 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, pale brown coarse sand.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Windsor, Hinckley, and Deerfield soils. Included soils make up about 20 percent of this map unit.

About half of the acreage of this soil is in urban use. Much of the remaining acreage is in scrubby woodland.

This soil has poor potential for farming, woodland, and wildlife habitat. It has good potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to farming because of droughtiness. Fertilizer is quickly leached. The hazard of erosion is slight. Important conservation management practices are irrigation, frequent application of fertilizer, and use of cover crops.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and red pine.

This soil has few limitations for most urban uses. Lawns may be difficult to establish because of droughtiness. Slope is a limitation for the construction of some buildings. It has limitations for most sanitary waste disposal facilities by the very rapid permeability. Capability subclass IVs.

CaC—Carver loamy coarse sand, 8 to 15 percent slopes. This moderately sloping soil is deep and excessively drained. It is on terraces and deltas. Slopes are smooth and convex and are 100 to 200 feet long. Areas range from 5 to 20 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, dark brown loamy coarse sand about 6 inches thick. The subsoil is loose, single grained, yellowish brown loamy coarse sand and coarse sand 14 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, pale brown coarse sand.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Windsor and Hinckley soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is scrubby woodland; some of the acreage is in urban use.

This soil has poor potential for farming, woodland, and wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to farming because of droughtiness. Fertilizer is quickly leached. The hazard of erosion is slight. Important conservation management practices are irrigation, frequent application of fertilizer, and use of cover crops.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and red pine.

This soil is limited for most urban uses by slope. Lawns may be difficult to establish in urban areas because of droughtiness. It is limited for most sanitary waste disposal facilities by the very rapid permeability. Capability subclass VIIs.

CkB—Charlton fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are generally smooth and convex and are 100 to 400 feet long. Areas range from 5 to 20 acres in size and are rectangular in shape.

In a typical profile in a formerly cultivated area, the surface layer is very friable, dark brown fine sandy loam about 8 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown and light olive brown fine

sandy loam 22 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is high. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted or has been planted to trees; some has been developed for homesites.

This soil has good potential for farming, woodland, openland and woodland wildlife habitat, and most urban uses. It has poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated corps. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the moderate or moderately rapid permeability. Capability subclass IIe.

CkC—Charlton fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are generally smooth and convex and are 100 to 400 feet long. Areas range from 5 to 20 acres in size and are rectangular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, dark brown fine sandy loam about 7 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is high. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites, and some has reverted to or has been planted to trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for most urban uses by slope. It is limited for most sanitary waste disposal facilities by the moderate or moderately rapid permeability. Capability subclass IIIe.

CmB—Charlton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are generally smooth and convex and are 100 to 600 feet long. Areas range from 15 to 100 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 5 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites; some is unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for most urban uses by large stones. It is limited for most sanitary waste disposal facilities by the moderate or moderately rapid permeability. Capability subclass VIs.

CmC—Charlton very stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are smooth and convex and are 200 to 500 feet long. Areas range from 20 to 100 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 5 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites; some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and shagbark hickory.

This soil is limited for most urban uses by slope and large stones. It is limited for most sanitary waste disposal facilities by the moderate or moderately rapid permeability. Capability subclass VIs.

CmD—Charlton very stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are smooth and convex and are generally 100 to 500 feet long. Areas range from 20 to 50 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 4 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 16 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for urban uses by slope. It is limited for sanitary waste disposal facilities by slope and moderate or moderately rapid permeability. Capability subclass VIs.

CnB—Charlton extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are smooth and convex and are 200 to 600 feet long. Areas range from 30 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 4 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 25 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Also included, near the city of Holyoke, are soils that contain many coarse sandstone and siltstone fragments. Included soils make up about 25 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for most urban uses by large stones. It is limited for sanitary waste disposal facilities by large stones and moderate or moderately rapid permeability. Capability subclass VIIs.

CnC—Charlton extremely stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are smooth and convex and are 100 to 500 feet long. Areas range from 30 to 150 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 7 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Also included are some small areas of soils which have subsoils that are reddish brown in the upper part and, near the City of Holyoke, are some soils that contain many coarse sandstone and siltstone fragments. Included soils make up about 25 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Equipment limitations are moderate because of the stones on the surface. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for most urban uses by slope or large stones. It is limited for sanitary waste disposal facilities by large stones, slope, and the moderate or moderately rapid permeability. Capability subclass VIIs.

CnD—Charlton extremely stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on the lower sides of hills and ridges. Slopes are smooth and convex and 200 to 400 feet long. Areas range from 50 to 200 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 3 inches thick. The subsoil is very friable, dark yellowish brown, yellowish brown, and light olive brown fine sandy loam 17 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability is moderate or moderately rapid, and available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Also included, near the city of Holyoke, are soils that contain many coarse sandstone and siltstone fragments. Included soils make up about 15 percent of this soil.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, and shagbark hickory.

This soil is limited for most urban uses by slope and large stones. It is also limited for sanitary waste disposal facilities by slope, large stones, and the moderate or moderately rapid permeability. Capability subclass VIIs.

COE—Charlton and Narragansett extremely stony soils, steep. These soils are steep and very steep, deep, and well drained. They are on the sides of hills and ridges. Slopes range from 25 to 40 percent. They are 300 to 1,000 feet long. Areas range from 20 to 200 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

This map unit is about 50 percent Charlton soils, 25 percent Narragansett soils, and 25 percent included soils. Areas may be dominantly Charlton soils, Narragansett soils, or a mixture of Charlton and Narragansett soils. The composition of the major soils and inclusions was not so carefully controlled in the mapping of this unit as it was in the mapping of other units. Composition is, however, suitable for interpretations for expected uses.

In a typical profile of a Charlton soil in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 3 inches thick. The subsoil is friable, dark yellowish brown to light olive brown fine sandy loam 17 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability of Charlton soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Narragansett soil in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 3 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 17 inches thick. The substratum, to a depth of 60 inches, is friable, gray sandy loam and loose, single grained, grayish brown gravelly loamy sand.

Permeability of Narragansett soils is moderate to rapid. Available water capacity is high. Plant roots extend into

the substratum. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, as large as 10 acres, of steep or very steep Brookfield, Meckesville, Paxton, Gloucester, and Wethersfield soils. These soils have management concerns similar to those of Charlton and Narragansett soils. Also included are areas, generally smaller than 3 acres, of Woodbridge soils.

These soils have poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. They have poor potential for urban uses and sanitary waste disposal facilities.

These soils are not suited to cultivated crops, hay, and pasture because of slope and the stones on the surface.

These soils are suited to trees and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, red pine, sugar maple, and shagbark hickory.

These soils are limited for urban uses and sanitary waste disposal facilities by slope, large stones, and the moderate or rapid permeability. Capability subclass VIIs.

CpB—Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes. This complex of undulating soils and Rock outcrop is on ridges and hills. Slopes are 50 to 200 feet long. Areas range from 20 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

This complex is approximately 40 percent deep, well drained Charlton soils; 25 percent shallow, somewhat excessively drained Hollis soils; 15 percent Rock outcrop; and 20 percent included soils. The Charlton soils are between the areas of Hollis soils, and the Hollis soils are adjacent to the Rock outcrop, which are granite and gneiss bedrock exposures 100 to 300 feet apart.

In a typical profile of a Charlton soil in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 7 inches thick. The subsoil is very friable, dark yellowish brown to light olive brown fine sandy loam 19 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability of Charlton soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Hollis soil, the surface layer is very friable, very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam 10 inches thick. Granite bedrock is at a depth of 14 inches.

Permeability of Hollis soils is moderate or moderately rapid. Available water capacity is very low. Plant roots extend to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included are small areas of moderately deep, well drained soils that have bedrock at a depth of 20 to 40 inches.

This complex has poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. It has better potential for trees and woodland wildlife habitat than for most other uses.

This complex is not suited to farming because of the Rock outcrop and the stones on the surface.

Charlton soils are suited to trees. Productivity is moderate. Hollis soils are poorly suited to trees; however, they are better suited to this use than to other uses. Productivity is low. Most of the acreage of this map unit is wooded. Important tree species on the soils in this complex are northern red oak, eastern white pine, and sugar maple.

This complex is limited for most urban uses and most sanitary waste disposal facilities by the shallow depth to bedrock, moderate or moderately rapid permeability, and large stones. Capability subclass VIIs.

CpC—Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes. This complex of rolling soils and Rock outcrop is on ridges and hills. Slopes are complex and are 100 to 500 feet long. Areas range from 10 to 60 acres in size and are irregular in shape.

About 35 percent of this complex is deep, well drained Charlton soils; 25 percent is shallow, somewhat excessively drained Hollis soils; 15 percent is Rock outcrop; and 25 percent is included soils. The Charlton soils are between the areas of Hollis soils. The Hollis soils are adjacent to the Rock outcrop, which are granite and gneiss bedrock exposures 100 to 300 feet apart. The Charlton and Hollis soils have stones scattered on the surface.

In a typical profile of a Charlton soil in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 7 inches thick. The subsoil is very friable, dark yellowish brown to light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability of Charlton soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Hollis soil, the surface layer is very friable, very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam 10 inches thick. Bedrock is at a depth of 14 inches.

Permeability of Hollis soils is moderate or moderately rapid. Available water capacity is very low. Roots grow to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included are small areas of moderately deep, well drained soils that have depth to bedrock ranging from 20 to 40 inches.

The soils in this complex have poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. These soils have better potential for trees and woodland wildlife habitat than for most other uses.

The soils in this complex are not suited to farming because of the outcrops of rock and the stones on the surface.

The Charlton soils are suited to trees. Productivity is moderate. The Hollis soils are poorly suited to trees. Productivity is low. Most of the acreage of this complex is wooded. Important tree species on the soils of this complex are northern red oak, eastern white pine, and sugar maple.

The soils of this complex are limited for most urban uses and most sanitary waste disposal facilities by the shallow depth to bedrock, the moderate or moderately rapid permeability, and large stones. Capability subclass VIIs.

CrC—Charlton-Rock outcrop-Hollis complex, 3 to 15 percent slopes. This complex of undulating to rolling soils and Rock outcrop is on ridges and hills. Slopes are 50 to 200 feet long. Areas range from 20 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

About 35 percent of this complex is deep, well drained Charlton soils; 30 percent is Rock outcrop; 15 percent is shallow, somewhat excessively drained Hollis soils; and 20 percent is included soils. The Charlton soils are between the areas of Hollis soils, and the Rock outcrop is adjacent to the Hollis soils. The outcrops are exposed granite and gneiss bedrock. They are less than 100 feet apart.

In a typical profile of a Charlton soil in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 7 inches thick. The subsoil is very friable, dark yellowish brown to light olive brown fine sandy loam 21 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability of Charlton soils is moderate to moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Hollis soil, the surface layer is very friable, very dark grayish brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam, 10 inches thick. Granite bedrock is at a depth of 14 inches.

Permeability of Hollis soils is moderate to moderately rapid. Available water capacity is very low. Roots grow to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge soils, Ridgebury soils, and moderately deep, well drained soils that have bedrock at a depth of 20 to 40 inches.

The soils in this complex have poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. These soils have better potential for woodland and woodland wildlife habitat than for other uses.

This complex is not suited to farming because of the stones on the surface and the Rock outcrop.

The Charlton soils are suited to trees. Productivity is moderate. The Hollis soils are poorly suited to trees. Productivity is low. Most of the acreage of this complex is wooded. Important tree species on the soils in this complex are northern red oak, eastern white pine, and sugar maple.

This complex is limited for most urban uses and most sanitary waste disposal facilities by the shallow depth to bedrock, moderate or moderately rapid permeability, and large stones. Capability subclass VIIs.

CrD—Charlton-Rock outcrop-Hollis complex, 15 to 25 percent slopes. This complex of hilly soils and Rock outcrop is on ridges and hills. Slopes are 50 to 150 feet long. Areas range from 20 to 100 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

This complex is approximately 35 percent deep, well drained Charlton soils; 30 percent Rock outcrop; 15 percent shallow, somewhat excessively drained Hollis soils; and 20 percent included soils. The Charlton soils are between the areas of Hollis soils, and the Rock outcrop is adjacent to the Hollis soils. The outcrops are exposed granite and gneiss bedrock and are less than 100 feet apart.

In a typical profile of a Charlton soil in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 3 inches thick. The subsoil is very friable, dark yellowish brown to light olive brown fine sandy loam 18 inches thick. The substratum, to a depth of 60 inches, is friable, olive fine sandy loam.

Permeability of Charlton soils is moderate or moderately rapid. Available water capacity is moderate. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

In a typical profile of a Hollis soil, the surface layer is very friable, very dark grayish brown fine sandy loam about 3 inches thick. The subsoil is friable, yellowish brown fine sandy loam 8 inches thick. Granite bedrock is at a depth of 11 inches.

Permeability of Hollis soils is moderate or moderately rapid. Available water capacity is very low. Roots grow to bedrock. Reaction is very strongly acid or strongly acid.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Also included are small areas of moderately deep, well drained soils that have bedrock at a depth of 20 to 40 inches.

The soils in this complex have poor potential for farming, openland and wetland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. These soils have better potential for trees and woodland wildlife habitat than for other uses.

This complex is not suited to farming because of the Rock outcrop and the stones on the surface.

The Charlton soils in this complex are suited to trees. Productivity is moderate. The Hollis soils are poorly suited to trees. Productivity is low. Most of the acreage of this complex is wooded. Important tree species on the soils in this complex are northern red oak, eastern white pine, and sugar maple.

The soils of this complex are limited for urban uses and sanitary waste disposal facilities by slope, the shallow depth to bedrock, the moderate or moderately rapid permeability, and large stones. Capability subclass VIIs.

De—Deerfield loamy fine sand. This soil is nearly level and gently sloping, deep, and moderately well drained. It is on terraces and outwash plains. Slopes are generally less that 5 percent. They are smooth and flat and are 100 to 600 feet long. Areas range from 5 to 40 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is friable, dark brown loamy fine sand about 10 inches thick. The subsoil is 20 inches thick. The upper part is loose, single grained, strong brown loamy fine sand; the middle part is loose, single grained loamy sand; and the lower part is loose, single grained, light olive brown sand. The subsoil has yellow, brown, and gray mottles below a depth of 17 inches. The substratum, to a depth of 60 inches, is loose, single grained, olive sand.

Permeability is rapid in the subsoil and very rapid in the substratum. Available water capacity is low. Growth of roots is limited to a depth of about 17 inches by a seasonal high water table. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Windsor and Wareham soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in homesites; some is farmed.

This soil has fair potential for farming and for openland and woodland wildlife habitat. It has good potential for woodland and fair potential for most urban uses. Potential for sanitary waste disposal facilities and wetland habitat is poor.

This soil has only a fair suitability for cultivated crops. A seasonal high water table and the low available water capacity are problems. Nutrients are quickly leached through the very rapidly permeable substratum. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. Conservation management practices are field drainage, fertilization, maintenance of the organic matter content of the plow layer, and the use of cover crops.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

Deerfield soils are suited to trees. Productivity is moderate. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table and the very rapidly permeable substratum. Capability subclass IIIw.

EdB—Eldridge loamy sand, 0 to 6 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on terraces and deltas. Slopes are smooth and are generally 50 to 200 feet long. Areas range from 5 to 30 acres in size and are irregular in shape.

In a typical profile in a cultivated field, the surface layer is very friable, dark brown loamy sand about 10 inches thick. The subsoil is loose, single grained, brown and light olive brown loamy sand 13 inches thick. The lower 5 inches of the subsoil has red and brown mottles. The substratum, to a depth of 60 inches, is mainly alternating thin layers of friable weak red silt and very fine sand; the upper part of the subsoil is mottled.

Permeability is rapid in the subsoil and moderately slow in the substratum. Available water capacity is high. This soil has a seasonal high water table for about 5 months in winter and early spring. Reaction is strongly acid to slightly acid in the subsoil and strongly acid to neutral in the substratum.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Amostown and Enosburg soils. Also included in mapping are a few small areas of soils that have the substratum below a depth of 40 inches. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for residential and commercial use, and some is wooded.

This soil has fair potential for farming and openland wildlife habitat and good potential for trees and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities and wetland wildlife habitat.

This soil has only a fair suitability for cultivated crops. A seasonal high water table and rapid permeability are problems. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight where the soil is nearly level and moderate where it is gently sloping. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases the organic matter content. Subsurface drains, where needed, eliminate troublesome wet spots.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees, but only a small acreage is in wooded. Productivity is moderate. Important tree species are eastern white pine, red pine, and red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table and the moderately slow permeability of the substratum. Capability subclass IIw.

EnA—Enfield silt loam, 0 to 3 percent slopes. This nearly level soil is deep and well drained. It is on stream terraces. Slopes are smooth and 100 to 700 feet long. Areas range from 5 to 70 acres in size and are irregular in shape.

In a typical profile in an area of old cropland that has reverted to woodland, the surface layer is very friable, brown silt loam about 6 inches thick. The subsoil is friable, light olive brown and light yellowish brown silt loam

19 inches thick. The substratum, to a depth of 60 inches, is thin, alternate layers of loose, single grained, gray fine sand and light brownish gray medium sand.

Permeability is moderate in the subsoil and very rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Sudbury and Ninigret soils. Included soils make up about 20 percent of this map unit.

Much of the acreage of this soil has been farmed; some of this acreage has since reverted to, or has been planted to, trees. Some acreage is in homesites.

This soil has good potential for farming, woodland, and woodland and openland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. Tilth can be improved and content of organic matter can be increased by incorporating grasses and legumes in the cropping system and by mixing crop residue and animal manure into the plow layer. The practice of minimum tillage eliminates or delays the formation of a "plow pan," a compacted layer immediately below the plow layer.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses by moderate susceptibility to frost action. It is limited for most sanitary waste disposal facilities by the very rapid permeability of the substratum. Capability class I.

EnB—Enfield silt loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on stream terraces. Slopes are smooth and convex and are 100 to 500 feet long. Areas range from 10 to 50 acres in size and are irregular in shape. In places stones are scattered 40 to 100 feet apart on the surface.

In a typical profile in a cultivated area, the surface layer is very friable, brown silt loam about 6 inches thick. The subsoil is friable, light olive brown and light yellowish brown silt loam 16 inches thick. The substratum, to a depth of 60 inches, is thin, alternate layers of loose, single grained, gray fine sand and light brownish gray medium sand.

Permeability is moderate in the subsoil and very rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Sudbury and Ninigret soils. Included soils make up about 15 percent of this map unit.

Much of the acreage of this soil has been farmed. Some of the acreage that was farmed has reverted to or has been planted to trees. Some acreage is used for homesites.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Minimum tillage also eliminates or delays the formation of a "plow pan," a compacted layer, just below the plow layer. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses by its moderate susceptibility to frost action. It is limited for sanitary landfill by the very rapid permeability of the substratum. Capability subclass IIe.

EnC—Enfield silt loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on stream terraces. Slopes are smooth and convex and are 50 to 200 feet long. Areas are 10 to 40 acres in size and are irregular in shape. In places, stones are scattered 40 to 100 feet apart on the surface.

In a typical profile in a cultivated area, the surface layer is very friable, brown silt loam about 6 inches thick. The subsoil is friable, light olive brown and light yellowish brown silt loam 14 inches thick. The substratum, to a depth of 60 inches, is thin, alternate layers of loose, single grained, gray fine sand and light brownish gray medium sand.

Permeability is moderate in the subsoil and very rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley soils. Included soils make up about 15 percent of this map unit.

Much of the acreage of this soil has been farmed; some of this acreage has since reverted to or has been planted to trees. Some acreage is in residential use.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, strip-

cropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Minimum tillage also eliminates or delays the formation of a plow pan, a compacted layer just below the plow layer. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by slope and the very rapid permeability of the substratum. Capability subclass IIIe.

Es—Enosburg loamy sand. This soil is nearly level, deep, and poorly drained. It is on terraces and deltas. Slopes are smooth and range from 0 to 3 percent. They are concave and are commonly 50 to 200 feet long. Areas range from 5 to 40 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, dark reddish brown loamy sand about 3 inches thick. The upper part of the subsoil is friable, dark gray loamy sand 7 inches thick; it is mottled red, brown, and gray. The lower part is loose, single grained grayish brown sand 16 inches thick; it is mottled red and gray. The substratum, to a depth of 60 inches, is friable, gray silt.

Permeability is rapid in the subsoil and moderately slow in the substratum. Available water capacity is high. Growth of roots is restricted to a depth of about 12 inches by a seasonal high water table, which is at or near the surface 6 to 8 months of the year.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Eldridge, Raynham, and Wareham soils. Also included are a few small areas of similar soils that have a red substratum. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed; most of this acreage has since reverted to woodland. Some acreage of this soil is used for homesites or commercial purposes.

This soil has fair potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities. It has good potential for wetland wildlife habitat.

This soil is suited to moisture tolerant cultivated crops. Wetness is the main limitation. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Field drainage is necessary in places.

This soil is suited to hay or pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees. Productivity is moderate. One of the important species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the seasonal high water table and the moderately slow permeability of the substratum. Capability subclass IIIw.

GfB—Gloucester sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and somewhat excessively drained. It is commonly in rectangular areas on the lower sides of hills. Slopes are generally smooth and convex and are 100 to 400 feet long. Areas range from 3 to 20 acres in size.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown sandy loam about 8 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 6 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 16 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate soils. Also included are some nearly level areas of Gloucester soils. Included soils make up about 25 percent of this map.

Much of the acreage of this soil has been farmed; some of this acreage has since reverted or has been planted to trees. Some acreage has been developed for homesites or commercial use.

This soil has fair potential for farming and woodland and poor potential for wildlife habitat. It has good potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil has only fair suitability for cultivated crops because of its low available water capacity. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil has only fair suitability for hay and pasture because of its low available water capacity. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited for trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the rapid permeability. Capability subclass IIs.

GhB—Gloucester very stony sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and somewhat excessively drained. It is commonly on the lower sides of hills. Slopes are generally smooth and convex and are 100 to 300 feet long. Areas range from 5 to 20 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown sandy loam about 4 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 10 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 16 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate soils. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites or commercial use; some is unimproved pasture, the chief farm use.

This soil has poor potential for farming and wildlife habitat and fair potential for woodland. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by large stones. It is limited for most sanitary waste disposal facilities by the rapid permeability and the large stones. Capability subclass VIs.

GhC—Gloucester very stony sandy loam, 8 to 15 percent slopes. This moderately sloping and rolling soil is deep and somewhat excessively drained. It is commonly on the lower sides of hills. Slopes are generally smooth and 50 to 200 feet long. Areas range from 5 to 20 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown sandy loam about 4 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 7 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 14 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate soils. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and wildlife habitat and fair potential for woodland. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and septic tank filter fields by large stones. Most sanitary waste disposal facilities are limited by the rapid permeability of the substratum. Capability subclass VIs.

GxB—Gloucester extremely stony sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and somewhat excessively drained. It is on the lower sides of hills. Slopes are generally smooth and convex and are 100 to 400 feet long. Areas range from 15 to 40 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown sandy loam about 3 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 9 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 18 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate and Ridgebury soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is in woodland. Some acreage is in homesites.

This soil has poor potential for farming and wildlife habitat and fair potential for woodland. It has poor potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by large stones. It is limited for sanitary waste disposal facilities by large stones and the rapid permeability. Capability subclass VIIs.

GxC—Gloucester extremely stony sandy loam, 8 to 15 percent slopes. This moderately sloping or rolling soil is deep and somewhat excessively drained. It is commonly on the lower sides of hills. Slopes are generally smooth and 50 to 200 feet long. Areas range from 30 to 75 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown sandy loam

about 3 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 8 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 14 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some of the acreage is used for homesites.

This soil has poor potential for farming and wildlife habitat and fair potential for woodland. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by slope and large stones. It is limited for sanitary waste disposal facilities by the rapid permeability and large stones. Capability subclass VIIs.

GxD—Gloucester extremely stony sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and somewhat excessively drained. It is commonly on the lower sides of hills. Slopes are generally smooth and convex and 200 to 500 feet long. Areas range from 30 to 70 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown sandy loam about 2 inches thick. The upper part of the subsoil is very friable, dark yellowish brown gravelly sandy loam 5 inches thick; the lower part is very friable, yellowish brown gravelly loamy coarse sand 13 inches thick. The substratum, to a depth of 60 inches, is very friable, light brownish gray gravelly loamy coarse sand.

Permeability is rapid. Available water capacity is low. Roots grow into the very friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of moderately deep soils that have bedrock at a depth of 20 to 40 inches. Included soils make up 10 percent of this map unit.

This soil has poor potential for farming and wildlife habitat and fair potential for woodland. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by large stones, slope, and the rapid permeability. Capability subclass VIIs.

Ha—Hadley very fine sandy loam. This nearly level soil is deep and well drained. It is on flood plains. Slopes are smooth, 0 to 3 percent, and are 100 to 500 feet long. Areas range from 5 to 60 acres in size and are irregular in shape. These areas are only slightly higher than stream level and are commonly flooded at least once every two years unless they are protected.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown very fine sandy loam about 12 inches thick. The upper 14 inches of the substratum is friable, olive brown and light olive brown very fine sandy loam. To a depth of 66 inches, it is friable to loose, light olive brown and olive very fine sand.

Permeability is moderate or moderately rapid. Available water capacity is high. Roots grow into the friable substratum. Reaction ranges from very strongly acid to neutral.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Suncook and Winooski soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is either farmed or has been developed for homesites or commercial use.

This soil has good potential for farming, woodland, and for openland and woodland wildlife habitat. It has poor potential for urban uses, sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The chief hazard is flooding. When this soil is cropped, minimum tillage, use of cover crops, incorporating grasses and legumes in the cropping system, and mixing crop residue and animal manure into the plow layer maintain tilth and increase organic matter content. Proper timing of farming operations is important.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard and a high susceptibility to frost action. Capability subclass IIw.

HbA—Hadley very fine sandy loam, high bottom, 0 to 3 percent slopes. This nearly level soil is deep and well drained. It is on flood plains close to large rivers. Slopes are smooth. Areas range from 10 to 75 acres in size and are irregular in shape. These areas are well above normal stream level and are seldom flooded more than once every 5 to 20 years. Many areas are protected.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown very fine sandy loam about 12 inches thick. The upper 14 inches of the substratum is friable, olive brown and light olive brown very fine sandy loam. To a depth of 66 inches, it is friable to loose, light olive brown and olive very fine sand.

Permeability is moderate or moderately rapid. Available water capacity is high. Roots grow into the friable substratum. Reaction ranges from very strongly acid to neutral.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Suncook and Winooski soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed; many of these areas have since been developed for homesites or commercial use.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for urban uses, sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. When this soil is cropped, minimum tillage, use of cover crops, incorporating grasses and legumes in the cropping system, and mixing crop residue and animal manure into the plow layer maintain tilth and increase organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard and a high susceptibility to frost action. Capability class I.

HbB—Hadley very fine sandy loam, high bottom, 3 to 6 percent slopes. This gently sloping soil is deep and well drained. It is on flood plains close to large rivers. Slopes are smooth and are 100 to 300 feet long. Areas range from 10 to 40 acres in size and are irregular in shape. They are well above normal stream level and are seldom flooded more than once every 5 to 20 years. Many areas are protected.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown very fine sandy loam about 10 inches thick. The upper 14 inches of the substratum is friable, olive brown and light olive brown very fine sandy loam. To a depth of 66 inches, it is friable to loose, light olive brown and olive very fine sand.

Permeability is moderate or moderately rapid. Available water capacity is high. Roots grow into the friable substratum. Reaction ranges from very strongly acid to neutral.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Suncook and Winooski soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Many of these areas have since been developed for homesites or commercial use.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for urban uses, sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard and a high susceptibility to frost action. Capability subclass IIe.

HgA—Hinckley loamy sand, 0 to 3 percent slopes. This nearly level soil is deep and excessively drained. It is on glacial outwash deposits. Areas range from 10 to 500 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is friable, brown loamy sand about 5 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand 13 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, single grained, brown sand and gravel.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum, but growth is often restricted by lack of moisture. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, Merrimac, Windsor, and Sudbury soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is scrubby woodland. Some acreage is in homesites.

This soil has poor potential for farming, woodland, and wildlife habitat. It has good potential for urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops because of droughtiness. Fertilizer is leached away by rapidly percolating water. The hazard of erosion is slight. Important management practices are irrigation accompanied by frequent application of fertilizer and addition of organic matter to the plow layer.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil has few limitations for most urban uses. Lawns are commonly difficult to establish because of droughtiness. This soil is limited for most sanitary waste disposal facilities by the very rapid permeability. Capability subclass IIIs.

HgB—Hinckley loamy sand, 3 to 8 percent slopes. This gently sloping and undulating soil is deep and excessively drained. It is on glacial outwash deposits. Slopes are complex and 50 to 200 feet long. Areas range from 10 to 100 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is friable, brown loamy sand about 5 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand 9 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, single grained, brown sand and gravel.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, Windsor, and Sudbury soils. In a few places are excessively drained soils that have red or reddish brown colors in the profile. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is scrubby woodland. Some of it is used for homesites.

This soil has poor potential for farming, woodland, and wildlife habitat. It has good potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops because of droughtiness. Fertilizer is leached away by rapidly percolating water. The hazard of erosion is slight. Important management practices are irrigation accompanied by frequent fertilization, use of cover crops, and addition of organic matter to the plow layer.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil has few limitations for most urban uses. Slope is a limitation for the construction of some buildings. Lawns are commonly difficult to establish because of droughtiness. This soil is limited for most sanitary waste disposal facilities by the very rapid permeability. Capability subclass IIIs.

HgC—Hinckley loamy sand, 8 to 15 percent slopes. This moderately sloping or rolling soil is deep and excessively drained. It is on glacial outwash deposits. Slopes are complex and 50 to 300 feet long. Areas range from 10 to 100 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is friable, brown loamy sand about 5 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand 9 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, single grained, brown sand and gravel.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum, but growth is often restricted by lack of moisture. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, and Sudbury soils. In a few places are excessively drained soils that have red or reddish brown colors in the profile. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is in scrubby woodland. Some acreage is in homesites.

This soil has poor potential for farming, woodland, and wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops because of droughtiness. Fertilizer is leached away by rapidly percolating water. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer maintains tilth and increases organic matter content. Irrigation and frequent fertilization are also important management practices.

This soil is better suited for hay and pasture. Proper stocking rates, deferred grazing and pasture rotation help to maintain desirable plant species.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses by slope. Lawns are commonly difficult to establish because of droughtiness. This soil is limited for most other sanitary waste disposal facilities by the very rapid permeability and slope. Capability subclass IVe.

HgD—Hinckley loamy sand, 15 to 25 percent slopes. This moderately steep or hilly soil is deep and excessively drained. It is on glacial outwash deposits. Slopes are complex and 50 to 200 feet long. Areas range from 10 to 70 acres in size are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, brown loamy sand about 3 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand 11 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, single grained, brown sand and gravel.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum, but growth is often restricted by lack of moisture. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, and Sudbury soils. In a few places are excessively drained soils that have red or reddish brown colors in the profile. Included soils make up about 25 percent of the map unit.

This soil has poor potential for farming, for most urban uses, and for most sanitary waste disposal facilities. It also has poor potential for woodland and for wildlife habitat.

This soil is not suited for cultivated crops because of slope and droughtiness. The hazard of erosion is severe.

This soil is poorly suited for hay and pasture because of slope and droughtiness. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is poorly suited to trees. Most of the acreage is in scrubby woodland. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for urban uses by slope. It is limited for sanitary waste disposal facilities by slope and very rapid permeability. Capability subclass VIs.

HgE—Hinckley loamy sand, 25 to 35 percent slopes. This steep soil is deep and excessively drained. It is on glacial outwash deposits. Slopes are smooth to complex and are 100 to 200 feet long. Areas range from 10 to 40 acres in size and are long and narrow in shape.

In a typical profile in a wooded area, the surface layer is friable, brown loamy sand about 2 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand 10 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, single grained, brown sand and gravel.

Permeability is very rapid. Available water capacity is very low. Roots grow into the loose substratum, but growth is often restricted by lack of moisture. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver soils. Also included are areas of steep Merrimac and Agawam soils. Included soils make up about 30 percent of this map unit.

This soil has poor potential for farming, urban uses, and sanitary waste disposal facilities. It also has poor potential for woodland and for wildlife habitat.

This soil is not suited for cultivated crops, hay, and pasture because of slope and droughtiness. The hazard of erosion is very severe.

This soil is poorly suited to trees. Most of the acreage is in scrubby woodland. Productivity is low. Important species are eastern white pine and northern red oak.

This soil is limited for urban uses by slope. It is limited for sanitary waste disposal facilities by slope and very rapid permeability. Capability subclass VIIs.

HoB—Holyoke very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is shallow and somewhat excessively drained. It is on hills and ridges. Slopes are smooth and commonly 50 to 100 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Outcrops of bedrock are more than 300 feet apart.

In a typical profile in a wooded area, the surface layer is very friable, dark grayish brown very fine sandy loam about 4 inches thick. The subsoil is very friable, brown very fine sandy loam about 12 inches thick. Red sandstone bedrock is at a depth of 16 inches.

Permeability is moderate. Available water capacity is very low. Reaction of the subsoil is strongly acid or very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton, Broadbrook, and Hollis soils. Also included are a few small areas of soils that have bedrock at a depth of 20 to 40 inches and shallow soils that have a sandy loam subsoil. Included soils make up about 40 percent of this map unit.

Most of the acreage of this soil is in low quality woodland. Some of the acreage has been developed for homesites. A small acreage has been farmed.

This soil has poor potential for farming, woodland, wildlife habitat, urban uses, and sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops. The very low available water capacity and the shallow depth to bedrock severely limit farming. The hazard of erosion is moderate. This soil is droughty.

This soil is better suited to hay or pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is poorly suited to trees; however, it is better suited to trees than to other uses. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the shallow depth to bedrock. Capability subclass IIIe.

HoC—Holyoke very fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is shallow and somewhat excessively drained. It is on hills and ridges. Slopes are smooth and are 50 to 200 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Outcrops of bedrock are more than 300 feet apart.

In a typical profile in a wooded area, the surface layer is very friable, dark grayish brown very fine sandy loam about 4 inches thick. The subsoil is very friable, brown very fine sandy loam about 8 inches thick. Red sandstone bedrock is at a depth of 12 inches.

Permeability is moderate. Available water capacity is very low. Reaction of the subsoil is strongly acid or very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton, Broadbrook, and Hollis soils. Also included are a few small areas of similar soils that have bedrock at a depth of 20 to 40 inches, Holyoke soils that are moderately steep, and shallow soils that have a sandy loam subsoil. Included soils make up about 40 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites, and a small acreage has been farmed.

This soil has poor potential for farming, urban uses, sanitary waste disposal facilities, woodland, and wildlife habitat.

This soil is poorly suited to cultivated crops. The very low available water capacity and the shallow depth to bedrock seriously limit farming. The hazard of erosion is severe.

This soil is better suited to long term hay or pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is poorly suited to trees. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the shallow depth to bedrock. Capability subclass IVe.

HrC—Holyoke-Rock outcrop complex, 3 to 15 percent slopes. This undulating and rolling complex is shallow and somewhat excessively drained. It is on hills and ridges. Slopes are complex and are commonly 50 to 200 feet long. Areas range from 10 to 75 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

This complex is 60 percent Holyoke soils, 20 percent Rock outcrop, and 20 percent included soils. The areas of Rock outcrop are interspersed, among the Holyoke soils.

In a typical profile of a Holyoke soil in a wooded area, the surface layer is very friable, dark grayish brown very fine sandy loam about 4 inches thick. The subsoil is very friable, brown very fine sandy loam about 10 inches thick. Red sandstone bedrock is at a depth of 14 inches.

Permeability of Holyoke soils is moderate. Available water capacity is very low. Reaction of the subsoil is very strongly acid or strongly acid.

Rock outcrop is exposed red sandstone or conglomerate bedrock of Triassic age, or basalt.

Included with this complex in mapping are areas, generally smaller than 3 acres, of Charlton, Broadbrook, and Hollis soils. Also included are a few areas of soils that have bedrock at a depth of 20 to 40 inches, shallow soils that have a sandy loam subsoil and Holyoke soils that are moderately steep. Included soils make up about 20 percent of this map unit.

This complex has poor potential for farming, woodland, wildlife habitat, urban uses, and sanitary waste disposal facilities.

This complex is not suited to cultivated crops, hay, or pasture because of the Rock outcrop, shallow depth to bedrock and surface stones.

This complex is poorly suited to trees but most of the acreage is wooded. Productivity is low. Important tree species are eastern white pine and northern red oak.

This complex is limited for urban uses and sanitary waste disposal facilities by the shallow depth to bedrock. Capability subclass VIs.

Lk—Limerick silt loam. This soil is nearly level, deep, and poorly drained. It is on flood plains. Slopes range from 0 to 3 percent and are smooth to slightly concave. Areas range from 5 to 30 acres in size and are irregular in shape, or, if located in old stream channels, are crescent shaped.

In a typical profile in a hayfield, the surface layer is very friable, very dark grayish brown silt loam 12 inches thick; it is mottled gray and brown. The upper 12 inches of the substratum is friable, dark grayish brown silt loam and is mottled red, brown, and gray. To a depth of 60 inches, it is alternating thin layers of friable, dark gray very fine sand, silt, and very fine sandy loam.

Permeability is moderate. Available water capacity is high. Growth of roots is restricted by a high water table that is at or near the surface during winter and spring. Reaction ranges from medium acid to neutral.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Winooski and Saco Variant soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, and openland and woodland wildlife habitat and good potential for wetland wildlife habitat. It has poor potential for most urban uses and for most sanitary waste disposal facilities. Much of the acreage of this soil has reverted to low quality woodland.

This soil is poorly suited to cultivated crops by the high water table and by stream overflow which floods this soil more than once every two years. The hazard of erosion is slight. Important conservation management practices are field drainage, improving tilth, and increasing the organic matter content.

This soil is better suited to hay and pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is poorly suited to trees, but much of the acreage is in low quality woodland. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the flood hazard, the high water table and a high susceptibility to frost action. Capability subclass IIIw.

LuB—Ludlow loam, 3 to 8 percent slopes. This gently sloping soil is deep and moderately well drained. It is on hills and ridges. Slopes are smooth and slightly concave, and are commonly 100 to 300 feet long. Areas range from 5 to 50 acres in size and are oval or irregular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, very dark brown loam about 8 inches thick. The subsoil is very friable and friable, dark reddish brown and reddish brown loam 18 inches thick; the lower 8 inches is mottled dark red and brown. The substratum, to a depth of 60 inches, is firm, brittle, reddish brown loam with yellowish red mottles.

Permeability is moderate in the subsoil and slow to very slow in the substratum. Available water capacity is moderate. A high water table is present for 3 to 5 months in winter and early in spring. Roots grow to the firm substratum. Reaction is very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Meckesville, Wethersfield, and Wilbraham soils. Also included are small areas of moderately sloping Ludlow soils and similar soils that are friable to a depth of 40 inches. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to or has been planted to trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. The hazard of erosion is moderate. The high water table commonly hampers tilling during the spring, and artificial drainage systems need to be installed in places. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table, the slow or very slow permeability of the substratum and a high susceptibility to frost action. Capability subclass IIw.

LwB—Ludlow very stony loam, 0 to 8 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on hills and ridges. Slopes are smooth and slightly concave and are commonly 100 to 400 feet long. Areas range from 10 to 50 acres in size and are oval or irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown loam about 6 inches thick. The subsoil is very friable and friable, dark reddish brown and reddish brown loam 18 inches thick; the lower 8 inches of the subsoil is mottled dark red and brown. The substratum, to a depth of 60 inches, is firm, brittle, reddish brown loam with yellowish red mottles.

Permeability is moderate in the subsoil and slow to very slow in the substratum. Available water capacity is moderate. A perched water table is present at a depth of 18 to 24 inches in winter and early in spring. Roots grow to the firm substratum. Reaction is very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of very stony Meckesville, Wethersfield, and Wilbraham soils. Also included are small areas of moderately sloping Ludlow soils and similar soils that are friable to a depth of 40 inches. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and good potential for woodland and for openland and woodland wildlife habitat. It has poor potential for most urban uses, for most sanitary waste disposal facilities, and for wetland wildlife habitat.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees. Productivity is moderately high. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table, the slow or very slow permeability of the substratum, and a high susceptibility to frost action. Capability subclass VIs.

LxB—Ludlow extremely stony loam, 0 to 8 percent slopes. This nearly level to gently sloping soil is deep and moderately well drained. It is on hills and ridges. Slopes are smooth and slightly concave and are commonly 100 to 500 feet long. Areas range from 10 to 50 acres in size and are oval or irregular in shape. Stones are scattered, 5 to 20 feet apart, on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown loam about 5 inches thick. The subsoil is very friable and friable, dark reddish brown and reddish brown loam 19 inches thick; the lower 8 inches is mottled dark red and brown. The substratum, to a depth of 60 inches, is firm, brittle, reddish brown loam with yellowish red mottles.

Permeability is moderate in the subsoil and slow to very slow in the substratum. Available water capacity is moderate. A perched water table is present at a depth of 18 to 24 inches in winter and early in spring. Roots grow to the firm substratum. Reaction is very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Meckesville, Wethersfield, and Wilbraham soils. Also included are small areas of similar soils that are friable to a depth of 40 inches. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and openland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses, for most sanitary waste disposal facilities, and for wetland wildlife habitat.

This soil is not suited to cultivated crops, hay, and pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table, large stones, the very slow or slow permeability of the substratum and a high susceptibility for frost action. Capability subclass VIIs.

LxC—Ludlow extremely stony loam, 8 to 15 percent slopes. This moderately sloping soil is deep and moderately well drained. It is on hills and ridges. Slopes are smooth and slightly concave and are commonly 200 to

500 feet long. Areas range from 10 to 50 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark brown loam about 4 inches thick. The subsoil is very friable and friable, dark reddish brown and reddish brown loam 16 inches thick; the lower 6 inches is mottled dark red and brown. The substratum, to a depth of 60 inches, is firm, brittle, reddish brown loam with yellowish red mottles.

Permeability is moderate in the subsoil and slow to very slow in the substratum. Available water capacity is moderate. Roots grow to the firm substratum. Reaction is very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of extremely stony Meckesville, Wethersfield, and Wilbraham soils. Also included are small areas of similar soils that are friable to a depth of 40 inches. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and openland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is not suited to cultivated crops, hay, and pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table, large stones, the slow or very slow permeability of the substratum and a high susceptibility to frost action. Capability subclass VIIs.

MaB—Meckesville loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on the tops and upper parts of drumlins, drumloidal hills, and ridges. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. Areas range from rectangles of 5 to 20 acres to ovals of 10 to 40 acres.

In a typical profile in a cultivated area, the surface layer is friable, dark brown loam about 8 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 18 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 26 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the brief seasonal high water table and the moderately slow permeability of the lower part of the subsoil. Capability subclass IIe.

MaC—Meckesville loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on the tops and upper sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 500 feet long. Areas range from 5 to 40 acres in size and from rectangular to oval in shape.

In a typical profile in a cultivated area, the surface layer is friable, dark brown loam about 8 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 16 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is moderate. A perched water table is in the lower subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 24 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed; some has since been developed for homesites.

This soil has good potential for farming, woodland, and for openland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terraces, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by a brief seasonal high water table, slope, and the moderately slow permeability of the lower part of the subsoil. Capability subclass IIIe.

MaD—Meckesville loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on the sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 10 to 30 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is friable, dark brown loam about 6 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 12 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 18 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites.

This soil has fair potential for farming and openland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for urban uses, most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is suited to only limited cultivation. Good tilth is easily maintained in cultivated areas. The hazard of erosion is severe. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is better suited to hay and pasture than to other uses because of the moderately steep slopes. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities because of the slope, moderately slow permeability of the lower part of the subsoil, and brief seasonal high water table. Capability subclass IVe.

MbB—Meckesville very stony loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on the tops and upper parts of drumlins, drumloidal hills, and ridges. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. Areas range from 10 to 40 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 8 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 11 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and in early spring. Growth of roots is restricted to a depth of about 19 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites and commercial uses, and some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones the brief seasonal high water table, and the moderately slow permeability of the lower part of the subsoil. Capability subclass VIs.

MbC—Meckesville very stony loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on the tops and upper sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 800 feet long. Areas range from 15 to 80 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 6 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 14 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available

water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and in early spring. Growth of roots is restricted to a depth of about 20 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites and some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities because of large stones the brief seasonal high water table, and the moderately slow permeability of the lower part of the subsoil. Capability subclass VIs.

MbD—Meckesville very stony loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on the sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 15 to 40 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 6 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 12 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 18 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some of the acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for upland and wetland wildlife habitat. It has good potential for woodland and woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope, the brief seasonal high water table and the moderately slow permeability of the lower part of the subsoil. Capability subclass VIs.

McB—Meckesville extremely stony loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on the tops and upper parts of drumlins, drumloidal hills, and ridges. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. Areas range from 10 to 40 acres in size and from oval to irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 4 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 16 inches thick; the lower part, to a depth of 60 inches is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 20 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, the moderately slow permeability of the lower part of the subsoil, and the brief seasonal high water table. Capability subclass VIIs.

McC—Meckesville extremely stony loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on the tops and upper sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 500 feet long. Areas range from 5 to 40 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 4 inches thick. The

upper part of the subsoil is thick and friable, reddish brown silt loam 16 inches thick; the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 20 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and openland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses, for most sanitary waste disposal facilities, and for wetland wildlife habitat.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, the moderately slow permeability of the lower part of the subsoil, and the brief seasonal high water table. Capability subclass VIIs.

McD—Meckesville extremely stony loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on the sides of drumlins, drumloidal hills, and ridges. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 10 to 40 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown loam about 4 inches thick. The upper part of the subsoil is friable, reddish brown silt loam 14 inches thick, the lower part, to a depth of 60 inches, is very firm, reddish brown silty clay loam.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is low. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 18 inches by the very firm hardpan. Reaction ranges from extremely acid to very strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wethersfield and Ludlow soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and openland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses, sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities because of slope, the brief seasonal high water table, large stones, and the moderately slow permeability of the lower part of the subsoil. Capability subclass VIIs.

MeA—Merrimac sandy loam, 0 to 3 percent slopes. This nearly level soil is deep and somewhat excessively drained. It is on stream terraces and outwash terraces. Slopes are smooth and 50 to 200 feet long. Areas range from 5 to 80 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is friable, brown sandy loam about 7 inches thick. The upper part of the subsoil is friable, brown sandy loam 8 inches thick; the lower part is friable, yellowish brown gravelly sandy loam 11 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown gravelly sand.

Permeability is moderately rapid or rapid in the subsoil and rapid in the substratum. Available water capacity is moderate. Roots grow into the loose substratum. Reaction is extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley and Sudbury soils. Also included are a few small areas of soils similar to Merrimac soils that have reddish brown colors in the profile and soils that have a fine sandy loam surface layer. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees and much of the acreage is now in homesites.

This soil has good potential for farming and woodland and fair potential for openland and woodland wildlife habitat. It has good potential for most urban uses. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops, and good tilth is easily maintained in cultivated areas. Droughtiness is a management concern. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Water management is necessary in places.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the rapid permeability of the substraum. Capability subclass IIs.

MeB—Merrimac sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and somewhat excessively drained. It is on stream terraces and outwash terraces.

Slopes are smooth and convex and are commonly 50 to 400 feet long. Areas range from 10 to 150 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is friable, brown sandy loam about 7 inches thick. The upper part of the subsoil is friable, brown sandy loam 7 inches thick; the lower part is friable, yellowish brown gravelly sandy loam 10 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown gravelly sand.

Permeability is moderately rapid or rapid in the subsoil and rapid in the substratum. Available water capacity is moderate. Roots grow into the loose substratum. Reaction is extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley and Sudbury soils. Also included are a few small areas of soils similar to Merrimac soils that have reddish brown colors and soils that have a fine sandy loam surface layer. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees and much of the acreage is now in homesites.

This soil has good potential for farming and woodland and fair potential for openland and woodland wildlife habitat. It has good potential for most urban use. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Droughtiness is a problem of management. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth, and increases organic matter content. Water management is necessary in places.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain species of desirable pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, red oak, and sugar maple.

This soil has few limitations for most urban uses. It is limited by slope for some buildings. It is limited for most sanitary waste disposal facilities by the rapid permeability of the substratum. Capability subclass IIs.

MeC—Merrimac sandy loam, 8 to 15 percent slopes. This moderately sloping and rolling soil is deep and somewhat excessively drained. It is on stream terraces and outwash terraces. Slopes are smooth and convex and are commonly 50 to 300 feet long. Areas range from 10 to 75 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is friable, brown sandy loam about 6 inches thick. The upper part of the subsoil is friable, brown sandy loam 7 inches thick; the lower part is friable, yellowish brown gravelly sandy loam 9 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown gravelly sand.

Permeability is moderately rapid or rapid in the subsoil and rapid in the substratum. Available water capacity is moderate. Roots grow into the loose substratum. Reaction is extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley and Sudbury soils. Also included are a few small areas of soils similar to Merrimac soils that have reddish brown colors and soils that have a fine sandy loam surface layer. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Much of it has reverted to, or has been planted to, trees. Some acreage of this soil is in homesites.

This soil has fair potential for farming and openland and woodland wildlife habitat and good potential for woodland. It has fair potential for most urban uses. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Erosion and droughtiness are major problems of management. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Water management is necessary in places.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, red oak, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope or the rapid permeability of the substratum. Capability subclass IIIe.

MeD—Merrimac sandy loam, 15 to 25 percent slopes. This moderately steep and rolling soil is deep and somewhat excessively drained. It is on stream terraces and outwash terraces. Slopes are convex and are commonly 50 to 300 feet long. Areas range from 5 to 60 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, brown sandy loam about 5 inches thick. The upper part of the subsoil is friable, brown sandy loam 7 inches thick; the lower part is friable, yellowish brown gravelly sandy loam 8 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown gravelly sand.

Permeability is moderately rapid or rapid in the subsoil and rapid in the substratum. Available water capacity is moderate. Roots grow into the loose substratum. Reaction is extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hinckley soils. Also included are a few small areas of soils similar to Merrimac soils that have reddish brown colors in the profile and soils that have a fine sandy loam surface layer. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded; some is in pasture, the main farm use.

This soil has poor potential for farming, good potential for woodland, and fair potential for woodland and openland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is suited to limited cultivation. Good tilth is easily maintained in cultivated areas. Erosion and droughtiness are major problems of management. The erosion hazard is severe. When this soil is cropped, terraces, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth, and increases organic matter content. Water management is necessary in places.

This soil is better suited to hay and pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by slope or rapid permeability of the substratum. Capability subclass IVe.

MmB—Montauk fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper parts of hills and ridges. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Areas range from 5 to 20 acres in size and are rectangular in shape.

In a typical profile in a cultivated area, the surface layer is friable, dark brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam 15 inches thick. The substratum, to a depth of 60 inches, is firm, brittle, light brownish gray gravelly loamy sand.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table occurs above the firm substratum for brief periods in early spring and after prolonged rains. Growth of roots is restricted to the subsoil by the firm substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate and Ridgebury soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites; some has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and for openland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees; however, only a small acreage is wooded. Productivity is moderately high. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses by the brief seasonal high water table and moderate susceptibility to frost action. It is limited for most sanitary waste disposal facilities by the brief high water table, the slow or moderately slow permeability of the substratum, and slope. Capability subclass IIe.

MnB—Montauk extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper parts of hills and ridges. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Areas range from 10 to 75 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam 15 inches thick. The substratum, to a depth of 60 inches, is firm, brittle, light brownish gray gravelly loamy sand.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is low. A perched water table is above the firm substratum for brief periods early in spring and after prolonged rains. Growth of roots is restricted to the friable subsoil by the firm substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate and Ridgebury soils. Also included are a few small areas of Montauk soils that have stones scattered 20 to 50 feet apart on the surface. Included soils make up about 25 percent of this unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by large stones and the brief high water table. It is limited for most sanitary waste disposal facilities by the slow or moderately slow permeability of the substratum, the high water table, and large stones. Capability subclass VIIs.

MnC—Montauk extremely stony fine sandy loam, 8 to 15 percent slopes. This moderate sloping soil is deep and well drained. It is on the sides of hills and ridges. Slopes are smooth and convex and are commonly 100 to 400 feet long. Areas range from 10 to 50 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, yellowish brown fine sandy loam about 7 inches thick. The subsoil is friable, yellowish brown fine sandy loam 15 inches thick. The substratum, to a depth of 60 inches, is firm, brittle, light brownish gray gravelly loamy sand.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is low. There is a perched water table above the firm substratum for brief periods in early spring and after prolonged rains. Growth of roots is restricted to the friable subsoil by the firm substratum. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Scituate and Ridgebury soils. Also included are a few small areas of moderately steep Montauk soils. Included soils make up about 25 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees and most of the acreage is in woodland. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by large stones, the brief high water table, and slope. It is limited for most sanitary waste disposal facilities by large stones, the slow or moderately slow permeability of the substratum, slope, and the brief high water table. Capability subclass VIIs.

Mu—Muck, deep. This map unit consits of deep, nearly level, very poorly drained organic material in depressions. Slopes are less than 1 percent. Areas range from 5 to 150 acres in size and are circular to irregular in shape.

The organic material is in layers that vary in color, thickness, and composition. Typically, Muck, deep, is black to very dark grayish brown relatively decomposed organic material to a depth of 60 inches. The depth to mineral material varies, however, from 30 inches to as much as several feet.

Permeability is moderate to rapid. Available water capacity is high. Growth of roots is restricted by a high water table at or near the surface more than 9 months of the year. Reaction ranges from extremely acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Peat and Muck, shallow. Included areas make up about 15 percent of this map unit.

Muck, deep, has poor potential for farming, woodland, and openland and woodland wildlife habitat. It has good potential for wetland wildlife habitat. It has poor potential for urban uses and for sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, and pasture because of the high water table and low strength.

This soil is not suited to trees because of the high water table, but most of the acreage is wooded. The trees, however, are of poor quality.

This soil is limited for urban uses and for sanitary waste disposal facilities by the high water table, low strength and the hazard of flooding. Capability subclass VIIw.

Mx—Muck, shallow. This map unit consists of nearly level and very poorly drained organic material 16 to 30 inches thick in depressions. Slopes are less than 1 percent. Areas range from 5 to 75 acres in size and are circular to irregular in shape.

Typically, Muck, shallow, is black to very dark grayish brown relatively decomposed organic material to a depth of 30 inches. This organic material is in layers that vary in color, thickness, and composition. The mineral substratum ranges from silt loam to sand and is as much as 60 percent gravel.

Permeability is moderate to rapid in the organic layers and in the mineral substratum. Available water capacity is high. Growth of roots is restricted by a high water table that is at or near the surface layer for more than 9 months of the year. Reaction ranges from extremely acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Muck, deep, Peat, and Saco Variant, Scarboro, and Whitman soils. Included soils make up about 20 percent of this map unit.

Muck, shallow, has good potential for wetland wildlife habitat. It has poor potential for farming, woodland, urban uses, sanitary waste disposal facilities, and for openland and woodland wildlife habitat.

This soil is not suited to cultivated crops, hay, or pasture because of the high water table.

This soil is not suited to trees because of the high water table, but most of the acreage is poor quality woodland.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table and the hazard of flooding. Capability subclass VIIw.

NaB—Narragansett very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on upland hills and ridges. Slopes are generally smooth and slightly convex and range from 100 to 400 feet long. Areas range from 5 to 30 acres in size and are rectangular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is very friable, dark brown very fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 20 inches thick. The upper part of the substratum is friable, gray sandy loam 7 inches thick; the lower part, to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites; some has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees, but only a small acreage is wooded. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the moderately rapid or rapid permeability of the substratum. Capability subclass IIe.

NaC—Narragansett very fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on upland hills and ridges. Slopes are generally smooth and convex and range from 200 to 400 feet in length. Areas range from 5 to 20 acres in size and are rectangular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, dark brown very fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 18 inches thick. The upper part of the substratum is friable, gray sandy loam 7 inches thick; the lower part, to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Also included are a few small areas of moderately steep Narragansett soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites; some has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and for openland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilitites and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage, use of cover crops, and incorporating grasses and legumes into the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases the organic matter content of this soil.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees, but only a small acreage is wooded. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and sanitary waste disposal facilities by slope and the moderately rapid or rapid permeability of the substratum. Capability subclass IIIe.

NbB—Narragansett very stony very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on upland ridges and hills. Slopes are generally smooth and slightly convex and are 100 to 400 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 20 inches thick. The upper part of the substratum is friable, gray sandy loam 7 inches thick; the lower part, to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for homesites; some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and openland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is not suited to cultivated crops primarily because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses by large stones. It is limited for most sanitary waste disposal facilities by the moderately rapid or rapid permeability of the substratum. Capability subclass VIs.

NbC—Narragansett very stony very fine sandy loam, 8 to 15 percent slopes. This moderately sloping or rolling soil is deep and well drained. It is on upland ridges and hills. Slopes are smooth and convex and 200 to 400 feet long. Areas range from 5 to 25 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 20 inches thick. The upper part of the substratum is friable, gray sandy loam 7 inches thick; the lower part to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded; some has been developed for residential use and some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and openland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for urban uses and poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and sanitary waste disposal facilities by slope, large stones, and the moderately rapid or rapid permeability of the substratum. Capability subclass VIs.

NcB—Narragansett extremely stony very fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on ridges and hills. Slopes are generally smooth and convex and are 100 to 400 feet long. Areas range from 10 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 4 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 24 inches thick. The upper part of the substratum is friable, gray sandy loam 6 inches thick; the lower part, to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of extremely stony Charlton soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for residential use.

This soil has poor potential for farming and openland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees. The equipment limitation is moderate because of the stones on the surface. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and sanitary waste disposal facilities by the stones on the surface and the moderately rapid or rapid permeability of the substratum. Capability subclass VIIs.

NcC—Narragansett extremely stony very fine sandy loam, 8 to 15 percent slopes. This moderately sloping or rolling soil is deep and well drained. It is on upland ridges and hills. Slopes are smooth and convex and are 100 to 400 feet long. Areas range from 10 to 80 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 8 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 20 inches thick. The upper part of the substratum is friable, gray sandy loam 6 inches thick; the lower part, to a depth of 60

inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage has been developed for residential use.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and sanitary waste disposal facilities by large stones and by the moderately rapid or rapid permeability of the substratum. Capability subclass VIIs.

NcD—Narragansett extremely stony very fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on upland ridges and hills. Slopes are generally smooth and are 100 to 500 feet long. Areas range from 10 to 75 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown very fine sandy loam about 5 inches thick. The subsoil is very friable, yellowish brown and light olive brown very fine sandy loam 17 inches thick. The upper part of the substratum is friable, gray sandy loam 5 inches thick; the lower part, to a depth of 60 inches, is loose, single grained, grayish brown gravelly loamy sand.

Permeability is moderate in the subsoil and moderately rapid or rapid in the substratum. Available water capacity is high. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Charlton soils. Included soils make up about 15 percent of the map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is suited to trees and most of the acreage is in woodland. Productivity is moderate. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for urban uses and for sanitary waste disposal facilities by large stones, slope, and the moderately rapid or rapid permeability of the substratum. Capability subclass VIIs.

Ng—Ninigret fine sandy loam, 0 to 6 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on terraces. Slopes are smooth and slightly concave and are commonly 100 to 500 feet long. Areas range from 5 to 50 acres in size and are irregular in shape.

In a typical profile in a hayfield, the surface layer is friable, dark brown fine sandy loam about 10 inches thick. The upper part of the subsoil is very friable and friable, yellowish brown fine sandy loam 15 inches thick; the lower part is friable, pale brown sandy loam 6 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, gray sand. The substratum and the lower 13 inches of the subsoil have grayish brown, yellowish brown, and strong brown mottles.

Permeability is moderately rapid in the subsoil and rapid in the substratum. Available water capacity is moderate. A seasonal high water table is in the lower 12 inches of the subsoil in winter and early spring. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Agawam and Wareham soils. Also included are a few areas of soils similar to Ninigret that have a reddish substratum. Included areas make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites; some has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair to poor potential for most urban uses. It has poor potential for most sanitary waste disposal facilities and wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Wetness is the main management problem. The hazard of erosion is slight where the soil is nearly level and moderate where it is gently sloping. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion in cultivated areas. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. An important tree species is eastern white pine.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the high water table and rapid permeability of the substratum. Capability subclass IIw.

PaB—Paxton fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper sides of drumlins. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. The shape and size of the areas vary from rectangles of 5 to 20 acres to ovals of 10 to 40 acres.

In a typical profile in a cultivated area, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 26 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 32 inches by the very firm substratum. Reaction is strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed; some of this acreage has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and for most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the slow or moderately slow permeability of the substratum and by the brief seasonal high water table. Capability subclass IIe.

PaC—Paxton fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the upper sides of drumlins. Slopes are smooth and slightly convex and are commonly 200 to 400 feet long. Areas vary from rectangles of 5 to 15 acres to ovals of 10 to 30 acres.

In a typical profile in a cultivated area, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 24 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 30 inches by the very firm substratum. Reaction is strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Also included are areas of moderately steep Paxton soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and for openland and woodland wildlife habitat. It has fair potential for most urban uses and fair to poor potential for sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is suited to cultivated crops and orchards. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terraces, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the slow or moderately slow permeability of the substratum, and the brief seasonal high water table. Capability subclass IIIe.

PbB—Paxton very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper sides of drumlins. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. Areas range from 20 to 80 acres in size and are oval or irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 26 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods

in winter and early spring. Growth of roots is restricted to a depth of about 32 inches by the very firm substratum. Reaction ranges from strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in homesites; some is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are red oak, red pine, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, large stones, and the brief high water table. Capability subclass VIs.

PbC—Paxton very stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the sides of drumlins. Slopes are smooth and convex and are commonly 200 to 400 feet long. Areas range from 10 to 40 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 24 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 30 inches by the very firm substratum. Reaction ranges from strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and fair to poor potential for most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, large stones, and the brief high water table. Capability subclass VIs.

PbD—Paxton very stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on the sides of drumlins. Slopes are smooth and convex and are commonly 100 to 300 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 5 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 18 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 23 inches by the very firm substratum. Reaction is strongly acid to slightly acid.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by large stones and the moderately slow or slow permeability of the substratum. Capability subclass VIs.

PcB—Paxton extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is commonly on the tops and upper sides of drumlins. Slopes are smooth and slightly convex and are commonly 100 to 300 feet long. Areas range from 30 to 75 acres in size and are oval in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 26 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 32 inches by the very firm substratum. Reaction is strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is unsuited to cultivated crops, hay, and pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by large stones, the moderately slow or slow permeability of the substratum, and the brief seasonal high water table. Capability subclass VIIs.

PcC—Paxton extremely stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is commonly on the sides of drumlins. Slopes are smooth and convex and are commonly 200 to 400 feet long. Areas range from 10 to 60 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 24 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods during winter and early spring. Growth of roots is restricted to a depth of about 30 inches by the very firm substratum. Reaction ranges from strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Ridgebury soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, the moderately slow or slow permeability of the substratum, and the brief high water table. Capability subclass VIIs.

PcD—Paxton extremely stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is commonly on the steep sides of drumlins. Slopes are smooth and convex and are commonly 200 to 400 feet long. Areas range from 15 to 50 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, dark brown fine sandy loam about 4 inches thick. The subsoil is friable, dark yellowish brown and olive brown fine sandy loam 18 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, dark gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 22 inches by the very firm substratum. Reaction ranges from strongly acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat, good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface and slope.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and for sanitary waste disposal facilities by the moderately steep slope, large stones, and moderately slow or slow permeability of the substratum. Capability subclass VIIs.

Pe—Peat. This map unit consists of partly decomposed organic material. It is deep, nearly level, and very poorly drained. It is in depressions and low areas on uplands and terraces. Slopes are less than 1 percent. Areas range from 5 to 40 acres in size and are circular to irregular in shape.

This organic material is in layers that vary in color, thickness, and composition. Typically, Peat is black to reddish brown to a depth of 30 inches. It ranges from 30 inches to several feet in depth to mineral material.

Permeability is rapid or very rapid. Available water capacity is high. Growth of roots is restricted by a high water table that is at or near the surface for more than 9 months of the year. Reaction ranges from extremely acid to slightly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Muck, deep, and Muck, shallow. Included soils make up about 5 percent of this map unit.

This soil has poor potential for farming, woodland, and openland and woodland wildlife habitat. It has good potential for wetland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the high water table and low strength.

This soil is not suited to trees because of the high water table, but most of the acreage is wooded. The trees, however, are of poor quality.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, low strength, and the hazard of flooding. Capability subclass VIIw.

Po—Podunk fine sandy loam. This soil is nearly level, deep, and moderately well drained. It is on flood plains. Slopes range from 0 to 3 percent. Areas range from 5 to 30 acres in size and are long and narrow or irregular in shape. In unprotected areas, stream overflow floods this soil for a brief period about once every two years, in winter and spring.

In a typical profile in a hayfield, the surface layer is very friable, dark brown fine sandy loam about 9 inches thick. The subsoil is friable, yellowish brown and olive brown fine sandy loam 15 inches thick; the lower part has gray and brown mottles. The substratum, to a depth of 60 inches, is friable sandy loam. The upper 8 inches is light olive brown, mottled with light brownish gray, and the lower 28 inches is light brownish gray.

Permeability is moderately rapid. Available water capacity is moderate. A water table is in the substratum in winter and early spring. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Rumney and Saco Variant soils. Also included are a few small areas of similar soils that are free of mottles to a depth of 24 to 40 inches. Included soils make up about 25 percent of this map unit.

This soil has good potential for farming, woodland, and woodland wildlife habitat. It has fair potential for openland wildlife habitat, and poor potential for urban uses, sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is suited to cultivated crops and much of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Field drainage is needed in places.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by flood hazard, the seasonal high water table, and the moderately rapid permeability. Capability subclass IIw.

PuA—Pollux fine sandy loam, 0 to 3 percent slopes. This nearly level soil is deep and well drained. It is on terraces and deltas. Slopes are smooth and are commonly 50 to 150 feet long. Areas range from 5 to 30 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once farmed, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and yellowish brown fine sandy loam 16 inches thick. The upper part of the substratum is friable, brown sandy loam 12 inches thick; the lower part, to a depth of 60 inches, is alternating thin layers of friable, yellowish brown and dark reddish brown silt.

Permeability is moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is high. Roots grow down through the subsoil and into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Amostown and Enosburg soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, openland and woodland wildlife habitat, urban uses, and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases the organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil has few limitations for most urban uses and most sanitary waste disposal facilities. Capability class I.

PuB—Pollux fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on terraces and deltas. Slopes are smooth and slightly convex and are commonly 50 to 100 feet long. Areas range from 5 to 50 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and yellowish brown fine sandy loam 16 inches thick. The upper part of the substratum is brown sandy loam 12 inches thick; the lower part, to a depth of 60 inches, is alternating thin layers of friable, dark reddish brown and yellowish brown silt.

Permeability is moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is high. Roots grow down through the subsoil and into the friable substratum. Reaction is very strongly acid or strongly acid.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat, most urban uses, and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes into the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil has few limitations for most urban uses and for most sanitary waste disposal facilities. Capability subclass IIe.

PuC—Pollux fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on terraces and deltas. Slopes are smooth and convex and are commonly 50 to 200 feet long. Areas range from 5 to 25 acres in size and are irregular in shape.

In a typical profile in a pasture, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, dark yellowish brown and yellowish brown fine sandy loam 16 inches thick. The upper part of the substratum is friable, brown sandy loam 12 inches thick; the lower part, to a depth of 60 inches, is alternating thin layers of friable, yellowish brown and dark reddish brown silt.

Permeability is moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is high. Roots grow down through the subsoil and into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Amostown soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has reverted to, or has been planted to, trees.

This soil has good potential for farming, woodland, and woodland and openland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terraces, minimum tillage, use of cover crops, and incorporating grasses and legumes into the cropping reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by slope. Capability subclass IIIe.

Ra—Raynham silt loam. This nearly level, deep, and poorly drained soil formed in glacio-lacustrine deposits in old lakebeds. Slopes are smooth and concave and range from 0 to 3 percent. Areas range from 5 to 20 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, dark grayish brown silt loam about 7 inches thick. The subsoil is friable, olive brown and grayish brown silt loam 17 inches thick; it is mottled brownish gray and yellowish brown. The substratum, to a depth of 60 inches, is thin layers of friable, mottled, dark grayish brown very fine sand and friable, olive gray silt.

Permeability is moderately slow or moderate in the subsoil and slow in the substratum. Available water capacity is high. A high water table is at or near the surface 6 to 8 months of the year. Roots grow down through the subsoil and into the substratum, but growth is hampered by the seasonal high water table. Reaction is strongly acid to medium acid in the subsoil and medium acid to neutral in the substratum.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Belgrade and Scantic Variant soils. Also included are a few small areas of gently sloping Raynham soils. Included soils make up about 20 percent of this map unit.

This soil has fair potential for farming and for wildlife habitat. It has poor potential for woodland, urban uses, and most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops. Wetness is the main problem. The hazard of erosion is slight. Field drainage is necessary. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is better suited to hay or pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is poorly suited to trees because of the seasonal high water table; however, most of the acreage is wooded. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, the slow permeability of the substratum, and a high susceptibility to frost action. Capability subclass IIIw.

Rd—Ridgebury sandy loam. This soil is nearly level, deep, and poorly drained. It is in depressions and along drainageways on uplands. Slopes range from 0 to 3 percent. They are smooth and concave and are 10 to 200 feet long. Areas range from 5 to 15 acres in size and are oval or long and narrow in shape.

In a typical profile in a pasture, the surface layer is very friable, black sandy loam about 6 inches thick. The subsoil is friable, mottled, olive gray sandy loam about 10 inches thick. The substratum, to a depth of 60 inches, is very firm, light olive brown and olive sandy loam. The upper part has gray mottles, and the lower part has brown and gray mottles.

Permeability is moderate or moderately rapid in the subsoil, and moderately slow to very slow in the substratum. Available water capacity is low. Growth of roots is restricted by the high water table at or near the surface 6 to 8 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Whitman soils. Also included are a few small areas of gently sloping Ridgebury soils and a few small areas of poorly drained soils that are loose and friable to a depth of 40 inches. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is wooded. Some is in unimproved pasture, the chief farm use.

This soil has fair potential for farming and for wildlife habitat. It has poor potential for woodland, urban uses, and sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops. The high water table keeps the soil saturated from late fall through spring. The hazard of erosion is slight. Conservation management practices are the installation of field drainage systems where feasible, proper timing of farming operations, and the use of adapted plant species.

This soil is better suited to hay and pasture than to other farm uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable plant species.

This soil is poorly suited to trees. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, the moderately slow to very slow permeability of the substratum, and a high susceptibility to frost action. Capability subclass IIIw.

ReA—Ridgebury extremely stony sandy loam, 0 to 3 percent slopes. This nearly level soil is deep and poorly drained. It is in depressions and along drainageways on uplands. Slopes are smooth and concave and 50 to 100 feet long. Areas range from 5 to 50 acres in size and are oval or long and narrow in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, black sandy loam about 6 inches thick. The subsoil is friable, mottled, olive gray sandy loam about 10 inches thick. The substratum, to a depth of 60 inches, is very firm, light olive brown and olive sandy loam. The upper part has gray mottles, and the lower part has brown and gray mottles.

Permeability is moderate or moderately rapid in the subsoil and moderately slow to very slow in the substratum. Available water capacity is very low. Growth of roots is restricted by the seasonal high water table at or near the surface 6 to 8 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Whitman soils. Also included are a few small areas of poorly drained soils that are friable to a depth of 40 inches and areas of Ridgebury soils that have stones more than 20 feet apart on the surface. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, and openland wildlife habitat and fair potential for woodland and wetland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface and the high water table.

This soil is poorly suited to trees, but most of the acreage is low quality woodland. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, the moderately slow to very slow permeability of the substratum, the large stones, and a high susceptibility to frost action. Capability subclass VIIs.

ReB—Ridgebury extremely stony sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and poorly drained. It is in depressions. Slopes are smooth and concave and are 100 to 500 feet long. Areas commonly range from 5 to 75 acres in size and are oval or long and narrow in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, black sandy loam about 6 inches thick. The subsoil is friable, mottled, olive gray sandy loam about 10 inches thick. The substratum, to a depth of 60 inches, is very firm, light olive brown and olive sandy loam. The upper part has gray mottles and the lower part has brown and gray mottles.

Permeability is moderate or moderately rapid in the subsoil and moderately slow to very slow in the substratum. Available water capacity is very low. Growth of roots is restricted by a seasonal high water table at or near the surface 6 to 8 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Woodbridge and Whitman soils. Also included are a few small areas of poorly drained soils that are friable to a depth of 40 inches and a few areas of Ridgebury soils that have stones scattered more than 20 feet apart on the surface. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, and for openland and wetland wildlife habitat and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface and the seasonal high water table.

This soil is poorly suited to trees, but most of the acreage is in low quality woodland. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, moderately slow to very slow permeability of the substratum, large stones, and a high susceptibility to frost action. Capability subclass VIIs.

Rf—Rock outcrop. This miscellaneous area is nearly level to very steep. It is on hills and ridges. Areas are 90 percent exposed bedrock. They are irregular in shape and 3 to 40 acres in size.

Included with Rock outcrop in mapping are areas, generally smaller than 3 acres, of soils that vary widely in depth to bedrock drainage and texture. Included soils make up about 10 percent of the map unit.

This map unit is limited for almost all uses by the exposed bedrock. Most areas are devoid of vegetation. Rock outcrop has very poor potential for farming, urban uses, sanitary waste disposal facilities, woodland, and wildlife habitat. It is better suited to recreational or esthetic uses than to most other uses. Capability subclass VIIIs.

RHD—Rock outcrop-Holyoke complex, sloping. This complex of Rock outcrop and sloping to moderately steep Holyoke soils is on hills and ridges. Slopes range from 3 to 25 percent and are 200 to 600 feet long. Areas range from 15 to 100 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

This complex is 40 percent Rock outcrop, 35 percent Holyoke soils, and 25 percent included soils. The areas of Rock outcrop and Holyoke soils are closely intermingled. The composition of Rock outcrop, the major soil, and inclusions was not so carefully controlled in this unit as it was in others. The composition is, however, suitable for interpretations for the expected uses.

Rock outcrops are exposed basalt, conglomerate, granite, sandstone, or gneiss bedrock.

In a typical profile of a Holyoke soil in a wooded area, the surface layer is very friable, dark grayish brown very fine sandy loam about 4 inches thick. The subsoil is very friable, brown very fine sandy loam 8 inches thick. Red sandstone bedrock is at a depth of 12 inches.

Permeability of Holyoke soils is moderate. Available water capacity is very low. Roots grow down to the bedrock. Reaction of the subsoil is very strongly acid or strongly acid.

Included with this complex in mapping are small areas of soils that are moderately deep, well drained, and have bedrock at a depth of 20 to 40 inches. Also included are small areas of soils that are shallow and have a sandy loam subsoil.

This complex has poor potential for farming, woodland, wildlife habitat, urban uses, and sanitary waste disposal facilities.

This complex is not suited to farming because of the shallow depth to bedrock and stones on the surface.

This complex is poorly suited to trees; however, most of the acreage is wooded, and the soils are generally better suited to trees than to other uses. Productivity of trees is low. Important tree species are eastern white pine and northern red oak.

This complex is limited for urban uses and sanitary waste disposal facilities by the shallow depth to bedrock. Capability subclass VIIs.

RHE—Rock outcrop-Holyoke complex, steep. This complex of Rock outcrop and steep and very steep Holyoke soils is on hills and ridges. Slopes are greater than 25 percent and are 400 to 800 feet long. Areas range from 20 to 200 acres in size and are irregular in shape.

This complex is about 35 percent Rock outcrop, 30 percent Holyoke soils, and 35 percent included soils. The areas of Rock outcrop and Holyoke soils are closely intermingled. In mapping, the composition of Rock outcrop, the major soil, and inclusions was not so carefully controlled in this unit as it was in others. The composition is, however, suitable for interpretations for the expected uses.

Rock outcrops are exposed basalt, conglomerate, sandstone, granite, or gniess bedrock.

In a typical profile of a Holyoke soil, the surface layer is very friable, dark grayish brown very fine sandy loam about 4 inches thick. The subsoil is very friable, brown very fine sandy loam 8 inches thick. Red sandstone bedrock is at a depth of 12 inches.

Permeability of Holyoke soils is moderate. Available water capacity is very low. Roots grow to bedrock. Reaction of the subsoil is very strongly acid or strongly acid.

Included with this complex in mapping are small areas of soils that are moderately deep, well drained, and have bedrock at a depth of 20 to 40 inches. Also included are small areas of soils that are shallow and have a sandy loam subsoil.

This complex has poor potential for farming, woodland, wildlife habitat, urban uses, and sanitary waste disposal facilities.

This complex is not suited to farming because of the shallow depth to bedrock, stones on the surface, and slope.

This complex is poorly suited to trees; however, most of the acreage of these soils is wooded, and the soils are generally better suited to trees than to other uses. Productivity is low. Important tree species are eastern white pine and northern red oak.

This complex is limited for most urban uses and sanitary waste disposal facilities by the shallow depth to bedrock and steep slopes. Capability subclass VIIs.

Ru—Rumney fine sandy loam. This soil is nearly level, deep, and poorly drained. It is on flood plains. Slopes are smooth and less than 3 percent. They are 50 to 150 feet long. Areas range from 5 to 30 acres in size and are irregular or crescent in shape. These areas are near stream level and are commonly flooded once every two years.

In a typical profile in an idle field, the surface layer is friable, very dark grayish brown fine sandy loam about 5 inches thick. The subsoil is friable, very dark gray fine sandy loam 21 inches thick; it has many red and gray mottles. The upper part of the substratum is very friable, very dark gray sandy loam 10 inches thick; the lower part, to a depth of 60 inches, is stratified thin layers of very friable to loose, very dark gray fine sandy loam, sandy loam, and loamy sand.

Permeability is moderately rapid. Available water capacity is high. The water table is at or near the surface 6 to 8 months of the year. Growth of roots is restricted to the subsoil by the seasonal high water table. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Podunk, Saco Variant, and Limerick soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is low quality woodland. Some acreage is in low quality hay and pasture.

This soil has fair potential for farming and wildlife habitat and poor potential for woodland, urban uses, and sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops because of the flood hazard and the seasonal high water table. Helpful management practices are field drainage and the use of crops that tolerate wetness.

This soil is fairly well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is suited to trees. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard, the seasonal high water table, and a high susceptibility to frost action. Capability subclass IIIw.

Sa—Saco Variant silt loam. This soil is nearly level, deep, and very poorly drained. Slopes are smooth and less than 3 percent. They are 100 to 200 feet long. Areas range from 5 to 30 acres in size and are irregular or crescent in shape. The areas are on flood plains, and they are commonly flooded at least once every two years.

In a typical profile in a brushy area, the surface layer is friable, very dark grayish brown and dark gray silt loam about 22 inches thick. It has gray and brown mottles below a depth of 10 inches. The subsoil is friable, gray and light olive brown silt loam 8 inches thick; it has brown, gray, and red mottles. The substratum, to a depth of 60 inches, is friable, mottled, olive gray silt loam.

Permeability is moderate. Available water capacity is high. Plant roots are restricted to the surface layer by a high water table that is at or near the surface for about 9 months of the year. Reaction ranges from very strongly acid to neutral.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Limerick and Muck, shallow, soils. Included soils make up about 15 percent of this map unit.

This soil is in sedges, grasses, shrubs, and moisture tolerant seeds.

This soil has poor potential for farming, woodland, and openland and woodland wildlife habitat and fair potential for wetland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the flood hazard and the high water table.

This soil is poorly suited to trees, and productivity of trees is low.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard, the high water table, and a high susceptibility to frost action. Capability subclass VIw.

Sc—Scantic Variant silt loam. This soil is nearly level, deep, and poorly drained. It is on old lakebeds. Slopes are smooth and less than 3 percent. Areas range from 5 to 20 acres in size and are irregular in shape.

In a typical profile in a wooded area, the surface layer is friable, black silt loam about 8 inches thick. The subsoil is 16 inches thick. It is friable, grayish brown and gray silt loam in the upper part; the lower part is gray loam; the subsoil has brown and gray mottles. The substratum, to a depth of 60 inches is firm, gray varved silty clay; it has brown and red mottles.

Permeability is moderate or moderately slow in the subsoil and slow in the substratum. Available water capacity is high. Plant growth of roots is restricted to the subsoil by a seasonal high water table that is within 18 inches of the surface for 7 to 9 months of the year.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Buxton Variant and Raynham soils. Also included are a few small areas of Scantic Variant soils that are gently sloping, and soils that have texture similar to that of Scantic Variant soils and are very poorly drained. Included soils make up about 25 percent of this map unit.

This soil has fair potential for wildlife habitat. It has poor potential for farming, urban uses, sanitary waste disposal facilities, and woodland.

This soil is poorly suited to cultivated crops because of the seasonal high water table. The selection of moisture tolerant plants is an important management practice. Artificial drainage is helpful but generally not feasible because of the slow permeability of the substratum and lack of outlets.

This soil is better suited to hay and pasture than to other farming uses. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is poorly suited to trees. Most of the acreage is wooded, however, but productivity is low. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table, a high susceptibility to frost action, and slow permeability of the substratum. Capability subclass IVw.

Se—Scarboro fine sandy loam. This soil is nearly level, deep, and very poorly drained. It is in low areas and depressions on terraces. Slopes are smooth and less than 3 percent. Areas range from 5 to 50 acres in size and are oval or irregular in shape.

In a typical profile in a wooded area, the surface layer is very friable, black fine sandy loam about 11 inches thick. The upper part of the subsoil is friable, single grained, gray loamy fine sand 13 inches thick. The lower part of the subsoil is friable, single grained, gray loamy sand 7 inches thick. It has yellow mottles. The substratum, to a depth of 60 inches, is stratified layers, each about 5 inches thick, of loose, single grained, olive gray fine sand, gravelly coarse sand, and gray sand.

Permeability is rapid or very rapid. Available water capacity is moderate. Growth of roots is restricted to the surface layer by a high water table that is at or near the surface about 10 months of the year.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Wareham soils and Muck, shallow. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, and openland and woodland wildlife habitat and fair potential for wetland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the high water table.

This soil is poorly suited to trees. Productivity is low. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the high water table and a high susceptibility to frost action. Capability subclass Vw.

SgB—Scituate fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and moderately well drained. It is commonly on the lower slopes of hills and ridges. Slopes are smooth and slightly concave and are commonly 200 to 500 feet long. Areas range from 5 to 20 acres in size and are rectangular in shape.

In a typical profile in a cornfield, the surface layer is friable, very dark grayish brown fine sandy loam about 7 inches thick. The upper part of the subsoil is friable, yellowish brown fine sandy loam 11 inches thick; the lower part is friable, dark yellowish brown gravelly sandy loam 7 inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, brown gravelly loamy sand. The lower part of the subsoil and the substratum have red and brown mottles.

Permeability is moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. Growth of roots is restricted by the firm substratum and by a seasonal high water table that occurs in the lower subsoil during winter and spring. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Montauk and Ridgebury soils. Also included are a few small areas of nearly level Scituate soils. Included soils make up about 20 percent of this map unit.

This soil has good potential for farming. It has good potential for woodland and for openland and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is suited to cultivated crops and most of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. Wetness is a concern, but, except for some wet spots, field drainage is not necessary. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees, but only a small acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and for most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum and the seasonal high water table. Capability subclass IIw.

ShB—Scituate extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and moderately well drained. It is commonly on the lower slopes of hills and ridges. Slopes are smooth and slightly concave and are commonly 200 to 800 feet long. Areas range from 10 to 25 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is friable, very dark grayish brown fine sandy loam about 4 inches thick. The upper part of the subsoil is friable, yellowish brown fine sandy loam 13 inches thick; the lower part is dark yellowish brown gravelly sandy loam 9

inches thick. The substratum, to a depth of 60 inches, is very firm, brittle, brown gravelly loamy sand. The lower part of the subsoil and the substratum are mottled red and brown.

Permeability is moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate. Growth of roots is restricted by the firm substratum and a seasonal high water table that occurs in the lower subsoil during winter and spring. Reaction ranges from extremely acid to medium acid.

Included with this soil in mapping, are areas, generally smaller than 3 acres, of Montauk and Ridgebury soils. Also included are a few small areas of moderately sloping Scituate soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and openland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is not suited to farming because of the stones on the surface.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the seasonal high water table, moderately slow or slow permeabiltiy of the substratum, and large stones. Capability subclass VIIs.

SrB—Sudbury fine sandy loam, 0 to 8 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on terraces. Slopes are smooth, slightly concave, and are commonly 100 to 400 feet long. Areas range from 5 to 30 acres in size and are irregular in shape.

In a typical profile in an idle field, the surface layer is friable, dark brown fine sandy loam about 10 inches thick. The upper part of the subsoil is friable, yellowish brown fine sandy loam 8 inches thick. The lower part is friable, yellowish brown gravelly sandy loam 5 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, brown gravelly sand. The substratum and the lower part of the subsoil have brown and gray mottles.

Permeability is moderately rapid to rapid. Available water capacity is moderate. Roots grow down through the subsoil and into the substratum, but growth in the substratum is restricted by the seasonal high water table that occurs during winter and spring. Reaction ranges from extremely acid to strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Merrimac, Wareham, and Scarboro soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil has been farmed. Some acreage has been developed for homesites.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is suited to cultivated crops. Good tilth is easily maintained in cultivated areas. Wetness is a concern (fig. 7). The hazard of erosion is slight to moderate. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Field drainage is needed in places.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderate. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses because of the seasonal high water table. It is limited for sanitary waste disposal facilities by the seasonal high water table and the rapid permeability of the substratum. Capability subclass IIw.

Su—Suncook loamy fine sand, 0 to 5 percent slopes. This nearly level to gently sloping soil is deep and excessively drained. In many places it forms the natural levees of streams. Slopes are smooth and convex and 50 to 100 feet long. Areas range from 5 to 25 acres in size and are long and narrow in shape. These areas are flooded by stream overflow approximately once every 1 to 4 years.

In a typical profile in a wooded area that was once cultivated, the surface layer is friable, dark grayish brown loamy fine sand about 10 inches thick. The substratum subsoil is layers of loose, olive brown, light brownish gray, and light olive brown medium sand in the upper 18 inches and, to a depth of 60 inches, is loose, yellowish brown sand.

Permeability is rapid or very rapid. Available water capacity is low. Roots grow into the loose substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hadley and Podunk soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, and for wetland and woodland wildlife habitat. It has fair potential for openland wildlife habitat and poor potential for urban uses and sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops. Flooding and droughtiness are major concerns of management. Mixing crop residue and animal manure into the plow layer helps to improve tilth and increase organic matter content.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is poorly suited to trees, however much of the acreage is wooded. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for urban uses and sanitary waste disposal facilities by the flood hazard and the rapid or very rapid permeability. Capability subclass IIIs.

Te—Terrace escarpments. These miscellaneous areas are moderately steep to very steep. The escarpments occur at the margins of the various levels of stream or glacial outwash terraces or are geological gullies in soft, water-deposited strata. Slopes are concave and are 20 to 400 feet long. Areas range from 30 to 300 acres in size and are commonly long and narrow, and often have a dendritic pattern. Most of these areas are vegetated, stabilized, and are not actively eroding.

Texture often varies considerably within a small area. The surface layer and subsoil range from silt loam to sand. They are 0 to 50 percent gravel. These miscellaneous areas are excessively drained to poorly drained. Wet, seepy spots often cause the steeply sloped soils to slump. Drainage is best near the upper margins of escarpments and grades to a wetter condition at lower levels.

This map unit has poor potential for farming and for openland and wetland wildlife habitat. It has fair potential for woodland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities. These areas do have potential for aesthetic uses, recreation, and greenbelt sites in urban areas.

This map unit is unsuited for cultivated crops, hay, or pasture by the steep slopes and highly variable conditions.

This map unit is suited to trees. Productivity, however, is low. Important tree species include eastern white pine and northern red oak.

This map unit is limited for urban use and sanitary waste disposal facilities by steep slopes and highly variable conditions. Not placed in a capability subclass.

UaB—Unadilla very fine sandy loam, 3 to 8 percent slopes. This gently sloping and undulating soil is deep and well drained. It formed in glacio-lacustrine deposits in old lakebeds. Slopes are smooth or complex and are commonly 50 to 200 feet long. Areas range from 5 to 25 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is very friable, very dark grayish brown very fine sandy loam about 10 inches thick. The subsoil is very friable and friable, light olive brown and olive very fine sandy loam 13 inches thick. The substratum, to a depth of 60 inches, is alternating thin layers of friable, pale olive very fine sand and olive silt.

Permeability is moderate. Available water capacity is high. Roots grow down through the subsoil and into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Belgrade and Raynham soils. Also included are a few areas of nearly level Unadilla soils. Included soils make up about 25 percent of this map unit.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has fair potential for most urban uses and good potential for most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops and most of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses by susceptibility to frost action. This soil has few limitations for most sanitary waste disposal facilities. Capability subclass IIe.

UaC—Unadilla very fine sandy loam, 8 to 15 percent slopes. This moderately sloping and rolling soil is deep and well drained. It formed in glacio-lacustrine deposits in old lakebeds. Slopes are smooth or complex and are commonly 100 to 300 feet long. Areas range from 5 to 25 acres in size and are irregular in shape.

In a typical profile in a wooded area that was once cultivated, the surface layer is very friable, very dark grayish brown very fine sandy loam about 8 inches thick. The subsoil is very friable and friable, light olive brown and olive very fine sandy loam 14 inches thick. The substratum, to a depth of 60 inches, is alternating thin layers of friable, pale olive very fine sand and olive silt.

Permeability is moderate. Available water capacity is high. Roots grow into the friable substratum. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Belgrade soils. Included soils make up about 20 percent of this map unit.

This soil has good potential for farming, for woodland, and for openland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops and most of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses by a susceptibility to frost action and for most sanitary waste disposal facilities are limited by slope. Capability subclass IIIe.

Ub—Urban land. This miscellaneous area has been so altered or obscured by urban works and structures that identification of soils is impossible. Buildings, industrial areas, paved parking lots, sidewalks, roads, and railroad yards cover most of the land surface. Areas range from 10 to several hundred acres in size, have sharp angular boundaries, and are irregular in shape.

Onsite investigations are necessary to determine the potentials and limitations for any proposed use.

UH—Urban land-Hadley-Winooski association. This association of Urban land and interspersed nearly level or gently sloping Hadley and Winooski soils is on flood plains. Hadley soils are deep and well drained; Winooski soils are deep and moderately well drained. The Hadley and Winooski soils are in vacant lots, lawns, parks, and other areas that are interspersed among buildings and streets. Slopes range from 0 to 8 percent. Areas range from 50 to several hundred acres in size and are irregular in shape. Most areas in this association are protected, but may be subject to floods on rare occasions.

This map unit is about 55 percent Urban land, 15 percent Hadley soils, 15 percent Winooski soils, and 15 percent included soils.

Each component of this association occurs in areas large enough to map separately, but separate mapping was not necessary because the dominant component, Urban land, is committed to a land use not expected to change in the near future. The composition of the major components and inclusions was not as carefully controlled in the mapping of this unit as it was in the mapping of other units in this survey. The information presented, however, is suitable for interpreting this association for the expected land use.

Urban land is made up of areas of soils that have been so altered or obscured by urban works and structures that identification of the soils is impossible.

In a typical profile of a Hadley soil in a cultivated area, the surface layer is very friable, very dark grayish brown very fine sandy loam about 12 inches thick. The upper 14 inches of the substratum is friable, olive brown and light olive brown very fine sandy loam. To a depth of 66 inches, is friable to loose, light olive brown and olive very fine sand.

Permeability of the Hadley soils is moderate or moderately rapid. Available water capacity is high.

In a typical profile of a Winooski soil, the surface layer is very friable, very dark grayish brown silt loam about 12 inches thick. The upper part of the substratum is friable, olive silt loam 9 inches thick. The substratum, to a depth of 60 inches, is alternating thin layers of olive silt and very fine sand. These layers have light gray and yellowish red mottles.

Permeability of the Winooski soils is moderate. Available water capacity is high.

Included with this association in mapping are small areas of Limerick soils that have coarser textures.

The use potential of the soils in this association vary greatly. Onsite investigation is recommended.

Hadley and Winooski soils are limited for urban uses and sanitary waste disposal facilities because of the hazard of flooding. Winooski soils are also limited by 2 high water tables. Not placed in a capability subclass.

UK—Urban land-Hinckley-Windsor association. This association is made up of Urban land and nearly level to moderately sloping Hinckley and Windsor soils on glacial outwash terraces. The Hinckley and Windsor soils are in vacant lots, lawns, parks, and other areas that are interspersed among buildings and streets. The soils in this association are deep and excessively drained. Slopes range from 0 to 15 percent. Areas range from 50 to several hundred acres in size and are irregular in shape.

Each component of this association occurs in areas large enough to map separately, but mapping separately was not necessary because the dominant component, Urban land, is committed to a land use not expected to change in the near future. The composition of the major components and inclusions was not so carefully controlled in mapping as it was in other units in this survey. The information presented, however, is suitable for interpreting this association for the expected land use.

This map unit is about 55 percent Urban land, 20 percent Hinckley soils, 10 percent Windsor soils, and 15 percent included soils.

Urban land is made up of areas of soils that have been so altered or obscured by urban works and structures that identification of the soils is impossible.

In a typical profile of a Hinckley soil, the surface layer is friable, brown loamy sand about 5 inches thick. The subsoil is loose, single grained, brown and yellowish brown gravelly loamy sand about 13 inches thick. The substratum, to a depth of 60 inches, is alternate layers of loose, brown sand and gravel.

Permeability of Hinckley soils is very rapid. Available water capacity is very low.

In a typical profile of a Windsor soil, the surface layer is very friable, brown loamy sand about 7 inches thick. The subsoil is loose, single grained, strong brown coarse sand and loamy sand 16 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown sand.

Permeability of Windsor soils is rapid or very rapid. Available water capacity is low.

Included with this association in mapping are small areas of Merrimac, Carver, Sudbury, Deerfield, and Wareham soils.

Onsite investigations are recommended to determine soil potential.

Hinckley and Windsor soils have few limitations for most urban uses. These soils are limited for most sanitary waste disposal facilities by the rapid permeability of the substratum. Not placed in a capability subclass.

UW—Urban land-Wethersfield-Paxton association. This association of Urban land and interspersed gently sloping to moderately steep soils is on glacial till uplands. The Wethersfield and Paxton soils are in vacant lots, lawns, parks, and other areas that are interspersed among buildings and streets. The soils of this association are deep and well drained. Slopes range from 3 to 25 percent. Areas are irregular in shape and range from 50 acres to several hundred acres in size.

Each component of this association occurs in areas large enough to map separately, but separate mapping was not necessary because the dominant component, Urban land, is committed to a land use not expected to change in the near future. The composition of the major components and inclusions was not so carefully controlled in the mapping of this unit as it was in the mapping of other units in this survey. The information presented, however, is suitable for interpreting this association for the expected land use.

This map unit is about 60 percent Urban land, 15 percent Wethersfield soils, 15 percent Paxton soils, and 10 percent included soils.

Urban land is areas of soils that have been so altered or obscured by urban works and structures that identification of the soils is impossible.

In a typical profile of a Wethersfield soil, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick. The lower part of the subsoil is gravelly. The substratum is very firm, reddish brown, gravelly fine sandy loam to a depth of 60 inches.

Permeability of the Wethersfield soils is moderate in the subsoil and slow in the substratum. Available water capacity is moderate.

In a typical profile of a Paxton soil, the surface layer is friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable dark yellowish brown and olive brown fine sandy loam 24 inches thick. The substratum is very firm, brittle, dark gray fine sandy loam to a depth of 60 inches.

Permeability of the Paxton soils is moderate or moderately rapid in the subsoil and moderately slow or slow in the substratum. Available water capacity is moderate.

Included with this association in mapping are small areas of Meckesville, Ludlow, Woodbridge, and Ridgebury soils.

Onsite investigations are recommended to determine soil potential.

This association is limited for most urban uses and most sanitary waste disposal facilities by a brief seasonal high water table and moderate susceptibility to frost action. Not placed in a capability subclass.

Wa—Wareham loamy sand. This soil is nearly level, deep, and poorly drained. It is on sandy glacial outwash. Slopes are smooth and 50 to 150 feet long and less than 3 percent. Areas range from 5 to 40 acres in size and are irregular in shape.

In a typical profile in a cultivated area, the surface layer is friable, very dark gray loamy sand about 10 inches thick. The upper part of the substratum, to a depth of 18 inches, is brown loamy sand with olive brown and strong brown mottles and light olive brown sand with yellowish red and brown mottles. The lower part of the substratum, to a depth of 60 inches, is loose, grayish brown sand.

Permeability is rapid. Available water capacity is moderate. Growth of roots is restricted by a seasonal high water table at or near the surface for 6 to 8 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Deerfield, Scarboro, and Muck, shallow, soils. Also included are areas of soils that have redder colors than Wareham soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming, woodland, urban uses, and sanitary waste disposal facilities. It has fair potential for wildlife habitat.

This soil is poorly suited to cultivated crops. Where suitable drainage outlets are available, the soil can be drained and used for cropland. Important management practices are installing field drainage systems, where feasible, and appropriately timing farming operations. Good tilth and organic matter content are easy to maintain.

This soil is better suited for moisture tolerant hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees and most of the acreage is wooded. Productivity is moderate. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste disposal facilities by the seasonal high water table and the rapid permeability. Capability subclass IVw.

WeB—Wethersfield fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Areas range from rectangles of 5 to 20 acres to ovals of 10 to 40 acres.

In a typical profile in an idle area that was once cultivated, the surface layer is very friable, dark brown fine sandy loam about 8 inches thick. The subsoil is friable, reddish brown fine sandy loam 18 inches thick; the lower part of the subsoil is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown, gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early spring. Growth of roots is restricted to a depth of about 26 inches by the very firm, hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. This soil has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is well suited to cultivated crops and most of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is well suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by moderate susceptibility to frost action and by the brief seasonal high water table. This soil is limited for most sanitary waste disposal facilities by the slow permeability of the substratum and the brief seasonal high water table. Capability subclass IIe.

WeC—Wethersfield fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and convex and are commonly 50 to 200 feet long. Areas range from 5 to 25 acres in size and are rectangular or oval in shape.

In a typical profile in an idle area that was once cultivated, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick; the lower part of the subsoil is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 26 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

This soil has fair potential for farming. It has good potential for woodland and woodland and openland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is suited to cultivated crops and most of the acreage has been farmed. Good tilth is easily maintained in cultivated areas. The hazard of erosion is moderately severe. When this soil is cropped, stripcropping, terracing, minimum tillage practices, use of cover crops, and incorporating grasses and legumes in the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees, but only a small acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by moderate susceptibility to frost action, the brief seasonal high water table, and slope. This soil is limited for most sanitary waste disposal facilities by the slow permeability of the substratum, the brief seasonal high water table, and slope. Capability subclass IIIe.

WfB—Wethersfield very stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and slightly convex and are commonly 100 to 400 feet long. Areas range from 10 to 25 acres in size and are oval or irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 8 inches thick. The subsoil is friable, reddish brown fine sandy loam 18 inches thick; the lower part of the subsoil is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 26 inches by a very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and openland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has fair potential for most urban uses and most sanitary waste disposal facilities. It has poor potential for wetland wildlife habitat.

This soil is unsuited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species for pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by the brief seasonal high water table, moderate susceptibility to frost action, and large stones. This soil is limited for most sanitary waste disposal facilities by the brief seasonal high water table, slow permeability, and large stones. Capability subclass VIs.

WfC—Wethersfield very stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and convex and are commonly 100 to 400 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam 6 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick. The lower part of the subsoil is gravelly. The substraum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 26 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has good potential for woodland and for woodland wildlife habitat and fair potential for most sanitary waste disposal facilities. It has poor potential for farming, for most urban uses, and for openland and wetland wildlife habitat.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses by the brief seasonal high water table and slope. This soil is limited for most sanitary waste disposal facilities by the brief seasonal high water table, slow permeability of the substratum, large stones, and slope. Capability subclass VIs.

WfD—Wethersfield very stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and convex and are commonly 100 to 400 feet long. Areas range from 10 to 50 acres in size and are irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 4 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick. The lower part of the subsoil is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 24 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is wooded. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland and woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by slope and the brief seasonal high water table. The slow permeability of the substratum. Capability subclass VIs.

WgB—Wethersfield extremely stony fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and slightly convex and are commonly 100 to 600 feet long. Areas range from 10 to 60 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam 8 inches thick. The subsoil is friable, reddish brown fine sandy loam 18 inches thick; the lower part of the subsoil is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 26 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, and pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, the brief seasonal high water table, and the slow permeability of the substratum. Capability subclass VIIs.

WgC—Wethersfield extremely stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and convex and are commonly 100 to 500 feet long. Areas range from 10 to 50 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 6 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick. The lower part is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 26 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow and Wilbraham soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is unsuited for cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by large stones, the brief seasonal high water table, slope, and the slow permeability of the substratum. Capability subclass VIIs.

WgD—Wethersfield extremely stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and well drained. It is on drumloidal hills and ridges. Slopes are smooth and convex and are commonly 100 to 500 feet long. Areas range from 10 to 30 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 4 inches thick. The subsoil is friable, reddish brown fine sandy loam 20 inches thick. The lower part is gravelly. The substratum, to a depth of 60 inches, is very firm, reddish brown gravelly fine sandy loam.

Permeability is moderate in the subsoil and slow in the substratum. Available water capacity is moderate. A perched water table is in the lower part of the subsoil for brief periods in winter and early in spring. Growth of roots is restricted to a depth of about 24 inches by the very firm hardpan. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops, hay, and pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are northern red oak, eastern white pine, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by the slope, large stones, the brief seasonal high water table, and the slow permeability of the substratum. Capability subclass VIIs.

WhA—Whitman extremely stony loam, 0 to 3 percent slopes. This nearly level soil is deep and very poorly drained. It is in depressions and low areas on uplands. Slopes are smooth, 50 to 100 feet long. Areas range from 5 to 20 acres in size. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable and black. The upper 2 inches is muck loam and the lower 7 inches is loam. The subsoil is friable, gray fine sandy loam 13 inches thick. The lower 3 inches has brownish yellow mottles. The substratum, to a depth of 60 inches, is firm, grayish brown fine sandy loam that has gray and yellow mottles.

Permeability is moderate to moderately rapid in the subsoil and moderately slow to slow in the substratum. Available water capacity is moderate. The rooting zone extends to a depth of about 22 inches, but growth of roots is restricted by a water table at or near the surface more than 9 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas of Ridgebury soils and Muck, shallow. These areas are commonly less than 3 acres in size. Also included are a few areas of gently sloping Whitman soils. Included soils make up about 15 percent of this map unit.

This soil has poor potential for farming, woodland, openland and woodland wildlife habitat, urban uses, and sanitary waste disposal facilities. It has fair potential for wetland wildlife habitat.

This soil is unsuited to cultivated crops, hay, or pasture by stones on the surface and a high water table.

This soil is poorly suited to trees, but most of the acreage of this soil is wooded. Productivity is low. An important tree species is eastern white pine.

This soil is limited for urban uses and sanitary waste facilities by large stones, the high water table, and a high susceptibility to frost action. Capability subclass VIIs.

WmA—Wilbraham extremely stony silt loam, 0 to 3 percent slopes. This nearly level soil is deep and poorly drained. It is in depressions and low areas on uplands. Slopes are smooth and slightly concave and 50 to 150 feet long. Areas range from 5 to 20 acres in size and are oval or irregular in shape.

In a typical profile in a wooded area, the surface layer is very friable, dark brown and reddish gray silt loam 10 inches thick. This layer has dark reddish brown and grayish brown mottles. The upper part of the subsoil is friable, dark brown silt loam 6 inches thick; it has yellowish red and grayish brown mottles. The lower part of the subsoil, to a depth of 60 inches, is very firm and brittle, weak, red gravelly silty clay loam with black stains and underlying firm and brittle, dusky red gravelly loam with dark reddish brown stains.

Permeability is moderate in the upper part of the subsoil and slow or very slow in the lower part. Available water capacity is moderate. Growth of roots is restricted to the friable subsoil by a seasonal high water table, which is at or near the surface for 4 to 6 months of the year.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow soils. Also included are a few small acres of similar soils that are very poorly drained. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming, woodland, and openland wildlife habitat and fair potential for woodland and wetland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, and pasture because of the stones on the surface and the seasonal high water table.

This soil is suited to trees, and most of the acreage is wooded. Productivity is moderate. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses because of the seasonal high water table, high susceptibility to frost action, and large stones. It is limited for most sanitary waste disposal facilities by the high water table, slow to very slow permeability of the lower part of the subsoil, and large stones. Capability subclass VIIs.

WmB—Wilbraham extremely stony silt loam, 3 to 8 percent slopes. This gently sloping soil is deep and poorly drained. It is in depressions and low areas on uplands. Slopes are smooth and slightly concave. They are commonly 100 to 300 feet long. Areas range from 5 to 30 acres in size and are irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown and reddish gray silt loam 10 inches thick. This layer has dark reddish brown and grayish brown mottles. The upper part of the subsoil is friable, dark brown silt loam 6 inches thick; it has yellowish red and grayish brown mottles. The lower part of the subsoil, to a depth of 60 inches, is very firm and brittle, weak red gravelly silty clay loam with black stains and underlying firm and brittle, dusky red gravelly loam with dark reddish brown stains.

Permeability is moderate in the upper part of the subsoil and slow or very slow in the lower part. Available water capacity is moderate. Growth of roots is restricted in the friable subsoil by a seasonal high water table at or near the surface 4 to 6 months of the year. Reaction ranges from very strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Ludlow soils. Also included are a few small acres of similar soils that are very poorly drained. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, and pasture because of the stones on the surface and the seasonal high water table.

This soil is suited to trees. Productivity is moderate. Important tree species are northern red oak and eastern white pine.

This soil is limited for most urban uses by the seasonal high water table, high susceptibility to frost action, and large stones. It is limited for most sanitary waste disposal facilities by the high water table, the slow to very slow permeability of the lower part of the subsoil, and large stones. Capability subclass VIIs.

WnA—Windsor loamy sand, 0 to 3 percent slopes. This nearly level soil is deep and excessively drained. It is on glacial outwash plains and terraces. Slopes are smooth and 50 to 500 feet long. Areas range from 20 to 100 acres in size and are irregular in shape.

In a typical profile in an idle area, the surface layer is very friable, brown loamy sand about 7 inches thick. The subsoil is loose, single grained, strong brown coarse sand and loamy sand 16 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown sand.

Permeability is rapid or very rapid. Available water capacity is low. Roots grow down through the subsoil and into the loose substratum, but this growth is often restricted by lack of moisture. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, Agawam, Deerfield, and Hinckley soils. Included soils make up about 15 percent of this map unit.

Most of the acreage of this soil is in low quality woodland. Some acreage has been developed for homesites or commercial uses; some has been farmed.

This soil has poor potential for farming, woodland, and wildlife habitat. It has good potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops because it is droughty. It warms up early in spring and is easily cultivated. The hazard of erosion is slight. Important management practices are irrigation, maintaining soil tilth, and increasing organic matter content by mixing crop residue and animal manure into the plow layer.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of plants.

This soil is poorly suited to trees because of droughtiness. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the very rapid or rapid permeability. Capability subclass IIIs.

WnB—Windsor loamy sand, 3 to 8 percent slopes. This gently sloping soil is deep and excessively drained. It is on glacial outwash plains and terraces. Slopes are smooth and convex, and are commonly 100 to 500 feet long. Areas range from 20 to 100 acres in size and are irregular in shape.

In a typical profile in an idle area, the surface layer is very friable, brown loamy sand about 7 inches thick. The subsoil is loose, single grained, strong brown coarse sand and loamy sand 16 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown sand.

Permeability is rapid or very rapid. Available water capacity is low. Roots grow down through the subsoil and into the loose substratum, but growth is often restricted by a lack of moisture. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, Agawam, Deerfield, and Hinckley soils. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is in low quality woodland. Some acreage has been developed for homesites or commercial uses, and some has been farmed.

This soil has good potential for farming, woodland, and wildlife habitat. It has poor potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops, because it is droughty. The soil warms up early in spring and is easy to work. The hazard of erosion is slight. Important management practices are irrigation accompanied by frequent fertilization, use of cover crops, and incorporating grasses and legumes in the cropping system. Mixing crop residue and animal manure into the plow layer maintain tilth and increase the organic matter content.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is poorly suited to trees because of droughtiness. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil has few limitations for most urban uses. It is limited for most sanitary waste disposal facilities by the rapid to very rapid permeability. Capability subclass IIIs.

WnC—Windsor loamy sand, 8 to 15 percent slopes. This moderately sloping soil is deep and excessively drained. It is on glacial outwash terraces and plains. Slopes are smooth and convex and are commonly 100 to 400 feet long. Areas range from 20 to 75 acres in size and are irregular in shape.

In a typical profile in an idle area, the surface layer is very friable, brown loamy sand about 6 inches thick. The subsoil is loose, single grained, strong brown coarse sand and loamy sand 16 inches thick. The substratum, to a depth of 60 inches, is loose, single grained yellowish brown sand.

Permeability is rapid or very rapid. Roots grow down through the subsoil and into the loose substratum, but growth is often restricted by lack of moisture. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver, Deerfield, Agawam, and Hinckley soils.

Most of the acreage of this soil is in low quality woodland; some of the acreage has been developed for homesites and some has been farmed.

This soil has poor potential for farming, woodland, and wildlife habitat. It has fair potential for most urban uses and poor potential for most sanitary waste disposal facilities.

This soil is poorly suited to cultivated crops. It is droughty. The soil warms up in early spring and is easy to work. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes in the cropping system reduce the amount of runoff and control erosion. Mixing crop residue and animal manure into the plow layer maintains tilth and increases organic matter content. Irrigation is also an important management practice.

This soil is better suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is poorly suited to trees because of droughtiness. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for most urban uses by slope. It is limited for most sanitary waste disposal facilities by slope and by the rapid to very rapid permeability. Capability subclass IVs.

WnD—Windsor loamy sand, 15 to 25 percent slopes. This moderately steep and hilly soil is deep and excessively drained. It is on glacial outwash plains and terraces. Slopes are smooth and convex and are commonly 100 to 200 feet long. The smooth areas are 5 to 30 acres in size, and the hilly areas are 20 to 60 acres.

In a typical profile in a pasture, the surface layer is very friable, brown loamy sand about 4 inches thick. The subsoil is loose, single grained, strong brown coarse sand and loamy sand 17 inches thick. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown sand.

Permeability is rapid or very rapid. Available water capacity is low. Roots grow into the loose substratum, but growth is often restricted by lack of moisture. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver and Hinckley soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming, woodland, wildlife habitat, urban uses, and sanitary waste disposal facilities.

This soil is not suited to cultivated crops and is poorly suited to hay and pasture because of slope and droughtiness. The hazard of erosion is severe.

This soil is poorly suited to trees because of droughtiness. Most of the acreage is in low quality woodland. Productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for urban uses by slope. It is limited for most sanitary waste disposal facilities by slope and the rapid to very rapid permeability. Capability subclass VIs.

WnE—Windsor loamy sand, 25 to 35 percent slopes. This steep soil is deep and excessively drained. It is on glacial outwash plains and terraces. Slopes are smooth and convex and are commonly 100 to 200 feet long. Areas range from 5 to 20 acres in size.

In a typical profile in a wooded area, the surface layer is very friable, brown loamy sand about 3 inches thick. The subsoil is 17 inches thick. It is loose, single grained, strong brown coarse sand, and loamy sand. The substratum, to a depth of 60 inches, is loose, single grained, yellowish brown sand.

Permeability is rapid or very rapid. Available water capacity is low. Roots grow down through the subsoil and into the loose substratum, but growth is often restricted by lack of moisture. Reaction is very strongly acid or strongly acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Carver and Hinckley soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming, woodland, and wildlife habitat, urban uses, and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, and pasture because of slope and droughtiness. The hazard of erosion is very severe.

This soil is poorly suited to trees because of droughtiness. Most of the acreage is in poor quality woodland, but productivity is low. Important tree species are eastern white pine and northern red oak.

This soil is limited for urban uses by slope. It is limited for sanitary waste disposal facilities by slope and the rapid to very rapid permeability. Capability subclass VIIs.

Wo—Winooski silt loam. This nearly level soil is deep and moderately well drained. It is on flood plains. Slopes are 100 to 200 feet long and less than 3 percent. Areas range from 5 to 50 acres in size and are crescent or irregular in shape. This soil is subject to flooding by stream overflow once every 2 to 20 years; the frequency is determined by the location of this soil in relation to streams and dikes.

In a typical profile in a hayfield, the surface layer is very friable, very dark grayish brown silt loam about 12 inches thick. The upper part of the substratum is friable, olive silt loam 9 inches thick. The substratum, to a depth of 66 inches, is alternating thin layers of olive silt and olive very fine sand. These layers have light gray and yellowish red mottles.

Permeability is moderate. Available water capacity is high. Roots grow down through the subsoil and into the substratum. Growth is restricted, however, by the seasonal high water table, which is within 2 feet of the surface for about 5 months of the year.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Hadley and Limerick soils. Also included are a few small areas of soils that have coarser textures. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil has been farmed. Much of the acreage is in truck farms or wildlife sanctuaries.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for urban uses, sanitary waste disposal facilities, and wetland wildlife habitat.

This soil is suited to cultivated crops. Flooding and the high water table are management concerns. The hazard of erosion is slight. Good tilth is easily maintained in cultivated areas. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Additional conservation management practices are proper timing of farming operations and draining troublesome wet spots.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for urban uses by susceptibility to flooding and frost action and by the seasonal high water table. The susceptibility to flooding and the seasonal high water table also limit it for sanitary waste disposal facilities. Capability subclass IIw.

WrA—Woodbridge fine sandy loam, 0 to 3 percent slopes. This nearly level soil is deep and moderately well drained. It is on the tops of drumlins or drumloidal hills or on broad flats at lower elevations. Areas range from 3 to 20 acres in size and are rectangular or oval in shape.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam 22 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 30 inches by the very firm substratum. Reaction is strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton and Ridgebury soils. Also included are a few small areas of soils that are friable to a depth of 40 inches. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites and commerical uses.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities, and for wetland wildlife habitat.

This soil is suited to cultivated crops. The high water table is a concern in spring. The hazard of erosion is slight. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Artificial drainage is also an important management practice.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses by the seasonal high water table and susceptibility to frost action. It is limited for most sanitary waste disposal facilities by the high water table and the moderately slow or slow permeability of the substratum. Capability subclass IIw.

WrB—Woodbridge fine sandy loam, 3 to 8 percent slopes. This gently sloping soil is deep and moderately well drained. It is on or near the tops of drumlins or drumloidal hills or in irregular areas at lower elevations. Slopes are generally smooth and slightly concave and are commonly 100 to 400 feet long. Areas range from 5 to 30 acres in size and are rectangular or oval in shape.

In a typical profile in a cultivated area, the surface layer is very friable, very dark grayish brown fine sandy loam about 8 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam subsoil 18 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 26 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton and Ridgebury soils. Also included are a few small areas of soils that are friable to a depth of 40 inches. Included soils make up about 20 percent of this map unit.

Much of the acreage of this soil has been farmed. Some of this acreage has been developed for homesites and commercial uses.

This soil has good potential for farming, woodland, and openland and woodland wildlife habitat. It has poor potential for most urban uses, most sanitary waste disposal facilities and for wetland wildlife habitat.

This soil is suited to cultivated crops. The high water table is a concern in spring. The hazard of erosion is moderate. When this soil is cropped, stripcropping, minimum tillage, use of cover crops, and incorporating grasses and legumes into the cropping system reduce runoff and control erosion. Mixing crop residue and animal manure into the plow layer improves tilth and increases organic matter content. Artificial drainage is needed in places.

This soil is suited to hay and pasture. Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable species of pasture plants.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses by the seasonal high water table and susceptibility to frost action. It is limited for most sanitary waste disposal facilities by the high water table and the moderately slow or slow permeability of the substratum. Capability subclass IIw.

WsB—Woodbridge very stony fine sandy loam, 0 to 8 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on the tops of drumlins or drumloidal hills and on broad flats at lower elevations. Slopes are generally smooth and slightly concave and are commonly 100 to 500 feet long. Areas range from 5 to 50 acres in size and are oval or irregular in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown fine sandy loam about 5 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam 21 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and in spring. Growth of roots is restricted to a depth of about 26 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton and Ridgebury soils. Also included are a few small areas of soils that are friable to a depth of 40 inches. Included soils make up about 25 percent of this map unit.

Most of the acreage of this soil is woodland. Some acreage is in unimproved pasture, the chief farm use.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, the high water table, and the susceptibility to frost action. Capability subclass VIs.

WsC—Woodbridge very stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and moderately well drained. It is near the tops of drumlins or drumloidal hills or on broad flats at lower elevations. Slopes are generally smooth and slightly concave and are commonly 100 to 500 feet long. Areas range from 5 to 25 acres in size and are irregular or oval in shape. Stones are scattered 20 to 50 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown fine sandy loam about 4 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam about 20 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 24 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton soils. Also included are a few small areas of Woodbridge soils that are steeper and a few small acreas of soils that are friable to a depth of 40 inches. Included soils make up about 20 percent of this map unit.

Most of the acreage of this soil is woodland. Some is in unimproved pasture.

This soil has poor potential for farming and for openland and wetland wildlife habitat and good potential for woodland and woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops because of the stones on the surface.

Proper stocking rates, deferred grazing, and pasture rotation help to maintain desirable pasture plant species.

This soil is well suited to trees. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, red pine, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, the high water table, and the susceptibility to frost action. Capability subclass VIs.

WtB—Woodbridge extremely stony fine sandy loam, 0 to 8 percent slopes. This nearly level and gently sloping soil is deep and moderately well drained. It is on the tops of drumlins or drumloidal hills or on broad flats at lower elevations. Slopes are generally smooth and slightly concave and are commonly 100 to 600 feet long. Areas range from 10 to 70 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown fine sandy loam about 5 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam 21 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 26 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton and Ridgebury soils. Also included are a few small areas of soils that are friable to a depth of 40 inches. Included soils make up about 25 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, the high water table, susceptibility to frost action, and large stones. Capability subclass VIIs.

WtC—Woodbridge extremely stony fine sandy loam, 8 to 15 percent slopes. This moderately sloping soil is deep and moderately well drained. It is near the tops of drumlins or drumloidal hills or on the lower sides of drumlins. Slopes are generally smooth and slightly concave and are commonly 200 to 500 feet long. Areas range from 10 to 75 acres in size and are oval or irregular in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, dark brown fine sandy loam about 4 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam 20 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 24 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton soils. Included soils make up about 20 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland, and fair potential for woodland wildlife habitat. It has poor potential for most urban uses and most sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for most urban uses and most sanitary waste disposal facilities by the moderately slow or slow permeability of the substratum, the high water table, large stones, slope, or susceptibility to frost action. Capability subclass VIIs.

WtD—Woodbridge extremely stony fine sandy loam, 15 to 25 percent slopes. This moderately steep soil is deep and moderately well drained. It is on the sides of drumlins or drumloidal hills. Slopes are generally smooth and slightly concave and are commonly 100 to 500 feet long. Areas range from 20 to 50 acres in size and are irregular or oval in shape. Stones are scattered 5 to 20 feet apart on the surface.

In a typical profile in a wooded area, the surface layer is very friable, very dark grayish brown fine sandy loam about 4 inches thick. The subsoil is friable, brown, dark yellowish brown, and olive fine sandy loam 18 inches thick; the olive part has yellowish brown and olive gray mottles. The substratum, to a depth of 60 inches, is very firm, olive gray fine sandy loam.

Permeability is moderate or moderately rapid in the subsoil and slow or moderately slow in the substratum. Available water capacity is moderate. A high water table is in the lower subsoil in winter and spring. Growth of roots is restricted to a depth of about 22 inches by the very firm substratum. Reaction ranges from strongly acid to medium acid.

Included with this soil in mapping are areas, generally smaller than 3 acres, of Paxton soils. Included soils make up about 25 percent of this map unit.

This soil has poor potential for farming and for openland and wetland wildlife habitat. It has good potential for woodland and fair potential for woodland wildlife habitat. It has poor potential for urban uses and sanitary waste disposal facilities.

This soil is not suited to cultivated crops, hay, or pasture because of the stones on the surface.

This soil is well suited to trees, and most of the acreage is wooded. Productivity is moderately high. Important tree species are eastern white pine, northern red oak, and sugar maple.

This soil is limited for urban uses and sanitary waste disposal facilities by slope, the high water table, the large stones, and a high susceptibility to frost action. Capability subclass VIIs.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland, and woodland; as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities; and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations for these land uses can be identified, and costly failures in houses

and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

CHRISTOPHER G. MOUSTAKIS, resource conservationist, Soil Conservation Service, assisted in preparing this section.

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the system of land capability classification used by the Soil Conservation Service is explained, and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

Approximately 19,540 acres of the survey area is used for crops and pasture (*6*). Approximately 80 percent of this acreage is used for hay and pasture; 10 percent for row crops, mainly corn; and 10 percent for orchards, tobacco, vegetables, and nursery plants. Approximately 15,000 acres is idle farmland.

Increased crop production is possible in the survey area. Some potential cropland is currently wooded, in pasture, or idle. Yields can be increased by extending the latest crop production technology to all cropland in the survey area. Use of information in this soil survey will facilitate the application of such technology.

The acreage in crops and pasture has been drastically reduced by urbanization over the past 50 years. Land use is influenced by the large central metropolitan area.

Erosion is a concern on much of the cropland and pasture in the survey area, where the soils have slopes of more than 3 percent. Examples are the nonstony Paxton, Charlton, Meckesville, and Wethersfield soils.

Loss of the surface layer by erosion reduces the ability of the soil to produce. If an appreciable part of the surface layer is lost, part of the subsoil is incorporated into the plow layer. Erosion is particularly damaging to soils that have a layer, in or below the subsoil, that limits root growth. Examples of such a layer are the fragipan in Paxton, Meckesville, Wethersfield, and Montauk soils and the bedrock in Brimfield, Hollis, and Holyoke soils.

Erosion of farmland also results in sediment entering streams. Control of erosion minimizes the pollution of streams by sediment and improves water quality for municipal use, for recreation, and for fish and wildlife habitat.

Erosion control practices reduce the amount of runoff, increase infiltration, and provide protective surface cover. Such practices include terracing, stripcropping, use of cropping systems, and minimum tillage. Stripcropping is better suited to soils that have uniform slopes than it is to those that do not.

Field terraces are impractical in many parts of the survey area because of short and irregular slopes. Diversion terraces are effective for intercepting surface runoff.

On fields not suited to other erosion control practices, cropping systems that keep plant cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land and also provide nitrogen and improve tilth for the following crop.

Minimum tillage or no-tillage of crops that are normally intertilled also protect the soil from excessive erosion. These practices can be applied to most soils in the area.

Information concerning the design and management of erosion control practices for each kind of soil is available at local offices of the Soil Conservation Service.

A high water table is a major concern in the management of many soils in the survey area. Some soils are naturally so wet that they are not suited to the production of crops common to the area. These soils are the very poorly drained organic soils and the Scarboro, Saco Variant, and Whitman soils.

Poorly drained soils are so wet that many crops are damaged in most years. Examples are Limerick, Raynham, Ridgebury, and Rumney soils. Random tile drainage and use of moisture-tolerant forage crops are effective remedies which facilitate the farm use of these soils.

Some areas of moderately well drained soils have troublesome seep spots which require drainage. Ludlow, Woodbridge, Scituate, and Belgrade soils are in this group. In this survey area, orchards, and specialty crops in particular require drainage.

Drainage system design is determined by the kind of soil. Information on soil drainage and management of wet

soils is available at local offices of the Soil Conservation Service.

Fertility is naturally low in most soils in the survey area. Many soils are naturally very strongly acid or strongly acid. They require application of lime to raise the pH sufficiently for good growth of crops that grow best on nearly neutral soils. Available phosphorous and potash levels are naturally low. Additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crops, and on the expected yield. The Cooperative Extension Service can help farmers to determine the kinds and amounts of lime and fertilizer to apply.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Soils with good tilth are granular and porous.

Many of the soils used for crops in the survey area are light in color and low in content of organic matter. Generally the surface layer is massive or has weak structure. This layer, particularly if it is silt loam or very fine sandy loam, tends to be crusty and to break into clods when plowed.

Regular additions of crop residue and manure can improve soil structure and water infiltration.

Special crops grown commercially in the survey area are tobacco, vegetables, fruits, and nursery plants. Squash, potatoes, sweet corn, tomatoes, asparagus, and strawberries are grown on a small but significant acreage. Apples are the most important tree fruits in the area.

Deep, friable, or loose soils that have good natural drainage are especially well suited to many vegetables. In the survey area, these include Agawam, Brookfield, Charlton, Enfield, Hadley, Narragansett, and Unadilla soils that have slopes of less than 8 percent. If irrigated, the Hinckley, Merrimac, and Windsor soils that have slopes of less than 8 percent are suited to tobacco, vegetables, and fruits.

Most of the well-drained soils in the survey area are suited to orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor, however, are generally poorly suited to early vegetables, small fruits, and orchards.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 5.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops (*5*). The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at two levels: capability class and subclass. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 6. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability subclass is identified in the description of each soil map unit in the section "Soil Maps for Detailed Planning."

Woodland management and productivity

HENRY J. RITZER, resource conservationist, Soil Conservation Service, assisted in preparing this section.

Originally, Hampden County, Central Part, was dense woodland. Subsequently, all the virgin stands of timber were cleared for farming, commercial, and urban uses. There is about 98,500 acres of woodland (*6*) in the survey area consisting of second, third, or fourth growth stands.

The soils in this survey area are generally capable of supporting a good growth of northern red oak, red maple, sugar maple, white pine, and ash, if good woodland management is practiced.

In many areas, woodland is the most practical use for soils that are not suited to crops and pasture; however, trees grow slowly on poorly drained soils and shallow soils.

Table 7 contains information useful to woodland owners or forest managers planning use of soils for wood crops. Map unit symbols for soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

In table 7 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Considered in the ratings of *windthrow hazard* are characteristics of the soil that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate*, that some trees are blown down during periods of excessive soil wetness and strong winds; and

severe, that many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

The *potential productivity* of merchantable or *important trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils (fig. 8).

Engineering

WILLIAM P. ANNABLE, civil engineer, Soil Conservation Service, assisted in preparing this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 8 shows, for each kind of soil, the degree and kind of limitations for building site development; table 9, for sanitary facilities; and table 11, for water management. Table 10 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 8. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 8 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 8 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 9 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the

water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 9 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 10 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 14 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 10 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 14.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon

greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 11 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 11 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

ROBERT W. FRANZEN, wildlife biologist, Soil Conservation Service, assisted in preparing this section.

Various recreational opportunities exist in the survey area. Three State parks and one reservation offer fishing, swimming, hunting, hiking trails and paths, cross country skiing, picnicking, and ice-skating. A number of municipal parks are in the urban areas and one park has a zoo. Two privately owned campgrounds, two amusement parks, numerous golf courses, and several indoor skating rinks are available. A ski area is in the northern part of the survey area.

The soils of the survey area are rated in table 12 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 12 can be supplemented by information in other parts of this survey. Especially helpful

are interpretations for septic tank absorption fields, given in table 9, and interpretations for dwellings without basements and for local roads and streets, given in table 8.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

ROBERT W. FRANZEN, wildlife biologist, Soil Conservation Service, assisted in preparing this section.

Extensive urban development in the central part of the survey area has reduced the amount of wildlife habitat. Urban wildlife, such as pigeons, English sparrows, and nighthawks, are common in the more densely urbanized parts of the survey area.

Much more diversified wildlife habitat is available in the suburban parts of the survey area. The cottontail rabbit, gray squirrel, eastern chipmunk, striped skunk, and a variety of songbirds are common in the suburbs. Songbird feeders and nesting boxes, erected by many suburban residents, supplement the habitat. Occasionally a resident will plant shrubs and trees that are especially suited to certain kinds of wildlife. These plantings increase the amount and variety of wildlife in the area.

White-tailed deer are scarce except in the extreme eastern and western parts of the survey area. Gray squirrels are common to abundant throughout the area except in the more densely urbanized areas. Cottontail rabbits are more common in the low-density suburban areas than in the wooded rural lands.

Some unusual wildlife resource areas include the ponds in Forest Park, the Connecticut River and adjacent lands, and Westover Air Force Base.

Forest Park, a 700-acre park in Springfield, contains a series of interconnected ponds. Mallards and black ducks are attracted by these ponds. Other species of ducks, Canada geese, coots, and gulls can also be observed, especially during waterfowl migration periods.

Much of the land bordering the Connecticut River in Springfield, Agawam, and Longmeadow is farmed or used for conservation areas rather than for other purposes. Bird sanctuaries and town conservation commission lands used for nature study, hiking, and wildlife observation are in these areas. Over 300 acres of land lying adjacent to the Connecticut River, in the Town of Longmeadow, is managed for wildlife habitat. Ring-necked pheasant, cottontail rabbit, woodcock, woodchuck, muskrat, striped skunk, and a variety of songbirds can all be observed on this area.

Westover Air Force Base, Chicopee, has an unusually dense population of white-tailed deer.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 13, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area (*1*). This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult

and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and fescue.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, hazelnut, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are dogwood, autumn-olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cattail and rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include ruffed grouse, woodcock, thrushes, crow, woodpeckers, squirrels, gray fox, raccoon, and deer.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features.

Engineering properties

Table 14 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 14 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 14 in the standard terms used by the U.S. Department of Agriculture (*4*). These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*3*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*2*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection. The estimated classification is given in table 14.

Also in table 14 the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 15 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field

checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 16 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils. The kind of bedrock and its hardness as related to ease of excavation is also shown. Rippable bedrock can be excavated with a single-tooth ripping attachment on a 200-horsepower tractor, but hard bedrock generally requires blasting.

Potential frost action refers to the likelihood of damage to pavements and other structures by frost heaving and low soil strength after thawing. Frost action results from the movement of soil moisture into the freezing temperature zone in the soil, which causes ice lenses to form. Soil texture, temperature, moisture content, porosity, permeability, and content of organic matter are the most important soil properties that affect frost action. It is assumed that the soil is not covered by insulating vegetation or snow and is not artificially drained. Silty and clayey soils that have a high water table in winter are most susceptible to frost action. Well drained very gravelly or sandy soils are the least susceptible.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*7*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 17, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Inceptisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ochrept (*Ochr*, meaning the surface layer is light in color, plus *ept*, from Inceptisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Fragiochrepts (*Fragi*, meaning presence of a fragipan, plus *ochrept*, the suborder of Inceptisols that have light colored surface layers).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Fragiochrepts.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is coarse-loamy, mixed, mesic, Typic Fragiochrepts.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil

that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (4). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Agawam series

The Agawam series consists of coarse-loamy over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a yellowish brown fine sandy loam B horizon over an olive, fine sand C horizon. Agawam soils formed in glacial outwash.

Agawam soils are on glacial outwash terraces. Slope ranges from 0 to 15 percent.

Agawam soils formed in the same kind of material as the associated moderately well drained Ninigret soils and poorly drained Wareham soils. Agawam soils are in the same landscape as the Enfield soils, which have a very fine sandy loam or silt loam B horizon.

Typical pedon of Agawam fine sandy loam, 0 to 3 percent slopes, in a cultivated field, 1/2 mile east of the intersection of Springfield Street and Mill Street, and 50 feet south of Mill Street in the town of Agawam:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many grass roots; few small pebbles; slightly acid; abrupt smooth boundary.

B21ir—10 to 15 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; very friable; many grass roots; few small pebbles; strongly acid; clear smooth boundary.

B22—15 to 25 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; very friable; few grass roots; strongly acid; abrupt smooth boundary.

IIC1—25 to 30 inches; light olive brown (2.5Y 5/4) loamy fine sand; single grained; very friable; few grass roots; strongly acid; clear wavy boundary.

IIC2—30 to 60 inches; olive (5Y 5/3) fine sand; single grained; very friable; very few grass roots; medium acid.

The solum is 20 to 35 inches thick. The solum is commonly free of coarse fragments; in places, however, as much as 10 percent of it is coarse fragments. Coarse fragments make up 0 to 30 percent of the C horizon, to a depth of 40 inches, and 0 to 50 percent between depths of 40 and 60 inches. Reaction is strongly acid or very strongly acid, unless lime is applied.

The Ap horizon has value of 3 or 4 and chroma of 2 or 3. The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. Texture is loam, fine sandy loam, or sandy loam. The C horizon has hue of 10YR through 5Y, value of 4 through 6, and chroma of 3 and 4. Texture is loamy fine sand, loamy sand, fine sand, or sand.

Amostown series

The Amostown series consists of coarse-loamy, mixed, mesic Typic Dystrochrepts. These soils are deep and moderately well drained. They have dark yellowish brown, yellowish brown and light olive brown fine sandy loam and sandy loam B horizon, over a grayish brown silt loam C horizon. They formed in thin acid glacial outwash overlying glaciolacustrine deposits.

Amostown soils are on terraces and deltas near the larger streams. Slope ranges from 0 to 6 percent.

Amostown soils formed in the same kind of material as the associated well drained Pollux soils. Amostown soils are in the same landscape as Agawam and Ninigret soils, which have a sandy substratum, and Unadilla and Belgrade soils, which have a very fine sandy loam or silt loam subsoil.

Typical pedon of Amostown fine sandy loam, 0 to 6 percent slopes, in a pine plantation in Robinson State Park, 1/2 mile northeast of the intersection of North Street and North Westfield Street in the town of Agawam:

Ap—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure; very friable; many fine tree roots; very strongly acid; abrupt smooth boundary.

B21—10 to 18 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine and medium granular structure and weak medium subangular blocky structure; friable; many fine and medium tree roots; very strongly acid; clear smooth boundary.

B22—18 to 23 inches; yellowish brown (10YR 5/4) fine sandy loam; common medium prominent dark yellowish brown (10YR 4/4) and yellowish red (5YR 4/6) mottles; weak fine and medium granular structure; friable; few medium roots and common very fine roots or hyphae; very strongly acid; clear smooth boundary.

B23—23 to 32 inches; light olive brown (2.5Y 5/4) sandy loam; common coarse prominent yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) mottles; weak fine and medium granular structure; friable; common very fine tree roots or hyphae; very strongly acid; abrupt smooth boundary.

IIC—32 to 60 inches; grayish brown (10YR 5/2) silt loam; common medium prominent dark yellowish brown (10YR 4/4) and reddish brown (5YR 4/4) mottles; weak, thick platy structure; firm, slightly sticky, slightly plastic; strongly acid.

The solum is 22 to 38 inches thick. Reaction is very strongly acid or strongly acid in the solum and strongly acid to slightly acid in the underlying silty material. A slightly acid reaction occurs only below a depth of 30 inches.

The Ap horizon has value and chroma of 2, 3, or 4. The B21 horizon has hue of 7.5YR, 10YR, or 2.5YR; value of 4 or 5; and chromas of 4 to 6. The B22 and B23 horizons have matrix hue of 10YR and 2.5Y, value of 4 to 6, and chroma of 2 to 6. Texture is fine sandy loam or sandy loam. The IIC horizon has hues of 2.5YR to 5Y, values of 3 to 5, and chromas of 2 to 4. Texture is silt loam or very fine sandy loam.

Belgrade series

The Belgrade series consists of coarse-silty, mixed, mesic Aquic Dystric Eutrochrepts. These soils are deep and moderately well drained. They have a light olive brown and olive silt loam B horizon over a gray stratified silt and very fine sand C horizon. Belgrade soils formed in slightly acid to neutral glaciolacustrine deposits. In this survey area Belgrade soils are taxadjuncts to the series because the reaction throughout the solum is less acid than is defined for the Belgrade series.

Belgrade soils are on glaciolacustrine terraces. Slope ranges from 0 to 8 percent.

Belgrade soils formed in the same kind of material as the associated well drained Unadilla soils and poorly drained Raynham soils. Belgrade soils are in the same

landscape as the Unadilla soils, which lack mottles in the subsoil, and Buxton Variant soils, which have more clay in the substratum.

Typical pedon of Belgrade silt loam, 0 to 8 percent slopes, 1,400 feet east of Dwight Road in an area of the Franconia Country Club in the town of East Longmeadow:

Ap—0 to 12 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; very friable; many fine roots; neutral; abrupt smooth boundary.

B21—12 to 19 inches; light olive brown (2.5Y 5/4) silt loam; weak medium subangular blocky structure; very friable; common fine roots; slightly acid; clear smooth boundary.

B22—19 to 28 inches; olive (5Y 5/3) silt loam; few medium prominent grayish brown (2.5Y 5/2) and yellowish red (5YR 4/6) mottles; massive; friable; few fine roots; slightly acid; clear smooth boundary.

C—28 to 60 inches; finely stratified gray (N 6/0) very fine sand and gray (5Y 6/1) silt, overall texture is very fine sandy loam; common coarse prominent red (2.5YR 4/8) and dark red (10R 3/6) mottles; massive; the very fine sand is loose and single grained, the silt is friable to firm; slightly acid.

The solum is about 20 to 30 inches thick. Unless lime is applied, reaction is slightly acid to strongly acid in the solum and medium acid or slightly acid in the C horizon.

The Ap horizon has value of 3 or 4 and chroma of 2 or 3. The B21 horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 3 to 6. The B22 horizon has hue of 5Y or 2.5Y. Mottles in the B horizon have chroma ranging from 2 to 6. Texture is silt loam or very fine sandy loam. The C horizon is varved very fine sand and silt. In places, this horizon contains a thin layer of clay.

Brimfield series

The Brimfield series consists of loamy, mixed, mesic Lithic Dystrochrepts. These soils are shallow and somewhat excessively drained. They have a yellowish red and brown fine sandy loam B horizon over schist and gneiss bedrock. Brimfield soils formed in thin glacial till derived mainly from pyritiferous schist.

Brimfield soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 25 percent.

Brimfield soils formed in the same kind of material as the associated deep Brookfield soils. Brimfield soils are in the same landscape as the shallow but yellower Hollis soils; the deep, well drained Charlton soils; and the deep, poorly drained Ridgebury soils, which have a fragipan.

Typical pedon of Brimfield fine sandy loam in a wooded area of Brookfield-Rock outcrop-Brimfield complex, 15 to 25 percent slopes; 1,440 feet east of West Warren Road, along power transmission line in the town of Palmer:

O1—2 to 1-1/2 inches; undecomposed moss.

O2—1-1/2 inches to 0; partly decomposed moss.

A1—0 to 2 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; 10 percent stones, 10 percent gravel and cobblestones; few mica flakes; very strongly acid; abrupt wavy boundary.

B21—2 to 7 inches; yellowish red (5YR 4/6) fine sandy loam; weak fine subangular blocky structure; firm to friable; common fine and medium roots; 15 percent gravel and cobblestone; few mica flakes; very strongly acid; abrupt wavy boundary.

B22—7 to 13 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; friable; common fine and medium roots; 15 percent gravel and cobblestones; few mica flakes; very strongly acid; clear smooth boundary.

R—13 inches; schist and gneiss bedrock.

The solum is 10 to 20 inches thick. Coarse fragments make up 10 to 20 percent of the solum. Reaction is very strongly acid or strongly acid.

The A horizon has hue of 5YR to 10YR, value of 3, and chroma of 2 or 3. The B horizon has hue of 2.5YR to 7.5YR and value and chroma of 4 to 6. Texture is fine sandy loam or sandy loam.

Broadbrook series

The Broadbrook series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and well drained. They have a brown gravelly silt loam B horizon over a brown and dark brown gravelly fine sandy loam fragipan. Broadbrook soils formed in a thin mantle of water- or wind-deposited material over acid glacial till derived mainly from mica schist and granite. In this survey area Broadbrook soils are taxadjuncts to the series because they have more coarse fragments in the solum than is defined for the Broadbrook series.

Broadbrook soils are on the tops and sides of drumloidal hills. Slope ranges from 3 to 25 percent.

Broadbrook soils are associated with the moderately well drained Woodbridge soils and the poorly drained Ridgebury soils. Broadbrook soils are on the same landscape as the Paxton soils, which lack a silty mantle.

Typical pedon of Broadbrook gravelly silt loam in an area of Broadbrook very stony silt loam, 3 to 8 percent slopes; 600 feet east of Whiting Farms Road and 2,200 feet southwest of the intersection of Whiting Farms Road and Northampton Street in the city of Holyoke:

Ap1—0 to 5 inches; very dark grayish brown (10YR 3/2) gravelly silt loam; weak fine granular structure; very friable, slightly sticky; many fine grass roots; 20 percent 1/2 to 3 inch basalt coarse fragments; medium acid; abrupt smooth boundary.

Ap2—5 to 9 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable, slightly sticky; common fine grass roots; 20 percent 1/2 inch to 3 inch basalt coarse fragments; medium acid; abrupt smooth boundary.

B21—9 to 12 inches; brown (7.5YR 4/4) gravelly silt loam; weak medium subangular blocky structure; friable, sticky; common fine grass roots; many worm holes filled with Ap material; 20 percent 1/2 to 3 inch basalt coarse fragments; medium acid; clear irregular boundary.

B22—12 to 20 inches; brown (7.5YR 4/4) gravelly silt loam; weak medium subangular blocky structure; friable, sticky; few fine grass roots; 25 percent 1/2 to 3 inch basalt coarse fragments; medium acid; abrupt wavy boundary.

IIC1x—20 to 23 inches; brown (7.5YR 4/4) gravelly fine sandy loam; moderate thick platy structure; very firm, brittle, nonsticky; few fine grass roots; many fine pores; thin silt caps on pebbles; few clay bridges on sand grains; 25 percent 1/16 to 1-1/2 inch quartzite coarse fragments; medium acid; clear wavy boundary.

IIC2x—23 to 60 inches; dark brown (7.5YR 3/2) gravelly fine sandy loam; massive; very firm, brittle, nonsticky; many fine pores; thin silt caps on pebbles; few clay bridges on sand grains; 25 percent 1/16 to 1-1/2 inch quartzite coarse fragments; medium acid.

The solum is 20 to about 26 inches thick. Coarse fragments make up 5 to 25 percent of the solum and 10 to 25 percent of the Cx horizon. Reaction is very strongly acid to medium acid throughout.

The Ap horizon has value of 3 and chroma of 2 or 3. The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. The B horizon is silt loam or very fine sandy loam. The C horizon color depends upon the lithologic origin of the soil material. The C horizon is loam, fine sandy loam, or sandy loam.

Brookfield series

The Brookfield series consists of coarse-loamy, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a dark reddish brown, reddish brown, and brown fine sandy loam B horizon over an olive brown gravelly loamy sand C horizon. They formed in glacial till derived mainly from pyritiferous schist.

The Brookfield soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 25 percent.

Brookfield soils formed in the same kind of material as the associated shallow and somewhat excessively drained Brimfield soils. Brookfield soils are in the same landscape as the Charlton and Woodbridge soils, which lack the reddish colors of Brookfield soils.

Typical pedon of Brookfield fine sandy loam in an area of Brookfield extremely stony fine sandy loam, 15 to 25 percent slopes; 150 feet West of Massachusetts Highway 67, 1/4 mile south of the Palmer-Warren town line in the town of Palmer:

O1—3 inches to 1 inch; loose litter, mainly hardwood leaves, twigs, and branches.

O2—1 inch to 0; layer of partly decomposed litter.

A1—0 to 1 inch; very dark brown (10YR 2/2) fine sandy loam; weak fine and medium granular structure; very friable; many small and medium tree roots; 15 percent gravel and cobblestones, 20 percent stones; very strongly acid; abrupt smooth boundary.

B21—1 to 5 inches; dark reddish brown (5YR 3/4) fine sandy loam; weak fine and medium granular structure and weak fine subangular blocky structure; very friable; many fine and medium tree roots; 15 percent gravel and cobblestones, 15 percent stones; very strongly acid; clear smooth boundary.

B22—5 to 14 inches; reddish brown (5YR 4/4) gravelly fine sandy loam; weak fine subangular blocky structure; friable; many fine and medium tree roots; 20 percent coarse fragments; very strongly acid; clear smooth boundary.

B23—14 to 30 inches; brown (7.5YR 5/4) gravelly fine sandy loam; weak fine subangular blocky structure; friable; many fine and medium tree roots; 20 percent coarse fragments; very strongly acid; clear, smooth boundary.

IIC—30 to 60 inches; olive brown (2.5Y 4/4) gravelly loamy sand; single grained; friable; few fine tree roots to a depth of 36 inches; 20 percent coarse fragments; very strongly acid.

The solum is 24 to 30 inches thick. Gravel size fragments make up 5 to 25 percent of the solum and 15 to 25 percent of the C horizon. Reaction is very strongly acid or strongly acid throughout.

The A horizon has value of 2 or 3 and chroma of 2. The upper part of the B horizon has hue of 5YR, value of 3 to 5, and chroma of 4 through 8. The lower part of the B horizon has hue of 7.5YR or 10YR. Texture of the upper part of the B horizon is generally fine sandy loam and the lower part is fine sandy loam or sandy loam. The IIC horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 through 6. Texture is loamy sand, fine sandy loam, or sandy loam.

Buxton Variant

The Buxton Variant consists of coarse-silty over clayey, mixed, mesic Aquic Dystrochrepts. These soils are deep and moderately well drained. They have a brown, light olive brown, and mottled grayish brown silt loam B horizon over a mottled, varved silty clay and silt C horizon. These soils formed in glaciolacustrine deposits.

Buxton Variant soils are on old lake beds. Slope ranges from 0 to 8 percent.

The Buxton Variant soils formed in the same kind of material as the associated poorly drained Scantic Variant soils. Buxton Variant soils are in the same landscape as Belgrade and Amostown soils, which have less clay in the substratum.

Typical pedon of Buxton Variant silt loam, 0 to 8 percent slopes, in woods 2,600 feet west of Dickinson Street and 500 feet north of Porter Lake in Forest Park in the city of Springfield:

O1—2 inches to 0; litter of loose leaves and twigs.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.

B21—9 to 16 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; very strongly acid; clear smooth boundary.

B22—16 to 20 inches; light olive brown (2.5Y 5/4) silt loam; common medium prominent yellowish brown (10YR 5/8) and gray (5Y 5/1) mottles; moderate fine and medium prismatic structure parting to moderate fine and medium angular blocky; friable; very strongly acid; clear smooth boundary.

B23—20 to 24 inches; grayish brown (2.5Y 5/2) silt loam; common medium prominent brown (7.5YR 4/4), yellowish brown (10YR 5/6), and gray (5Y 5/1) mottles; moderate fine and medium prismatic structure parting to moderate fine and medium angular blocky; friable to firm; very strongly acid; abrupt smooth boundary.

IIC1—24 to 34 inches; varved olive brown (2.5Y 4/4) and light yellowish brown (2.5Y 6/4) silty clay; common medium prominent brown to dark brown (7.5YR 4/4), dark yellowish brown (10YR 4/4), and gray (5Y 5/1) mottles; massive; firm; strongly acid; clear smooth boundary.

IIC2—34 to 60 inches; varved olive gray (5Y 4/2) and grayish brown (2.5Y 5/2) silty clay; massive; firm to very firm; strongly acid.

The solum and silty mantle are 20 to 30 inches thick. The solum is very strongly acid to medium acid, and the IIC horizon is strongly acid or medium acid.

The A horizon has value of 2 or 3 and chroma of 1 to 3. The B horizon has hue of 10YR to 2.5Y, value of 3 to 5, and chroma of 3 to 6. Distinct or prominent mottles are in the lower part of the B horizon. Texture is usually silt loam but includes light silty clay loam. The IIC horizon has hue of 2.5Y and 5Y, value of 4 or 5, and chroma of 2 to 4. The IIC horizon consists of varved silt and clay with overall textures of silty clay loam or silty clay.

Carver series

The Carver series consists of mixed, mesic Typic Udipsamments. These soils are deep and excessively drained. They have a yellowish brown loamy coarse sand and coarse sand B horizon, over a pale brown coarse sand C horizon. They formed in acid sandy glacial outwash.

Carver soils are on stream terraces, deltas, and outwash plains. Slope ranges from 0 to 15 percent.

Carver soils formed in the same kind of material as the associated excessively drained Windsor and moderately well drained Deerfield soils. Carver soils are in the same landscape as the Hinckley and Merrimac soils, which have gravelly and very gravelly substrata.

Typical pedon of Carver loamy coarse sand, 0 to 3 percent slopes, in woods 400 feet north of Boston Road and south of Fivemile Pond in the city of Springfield:

Ap1—0 to 2 inches; very dark grayish brown (10YR 3/2) loamy coarse sand; weak very fine granular structure; very friable; many fine and medium roots; 5 percent fine and very fine gravel; extremely acid; abrupt smooth boundary.

Ap2—2 to 11 inches; dark brown (10YR 3/3) loamy coarse sand; weak very fine granular structure; friable; many fine and medium roots in upper half and common medium and coarse roots in lower half; 5 percent fine and very fine gravel; extremely acid; abrupt irregular boundary.

B21—11 to 16 inches; yellowish brown (10YR 5/6) loamy coarse sand; single grained; loose; common medium and coarse roots in upper 2 inches, few medium roots below; 5 percent fine and very fine gravel; extremely acid; clear smooth boundary.

B22—16 to 25 inches; yellowish brown (10YR 5/4) coarse sand; single grained; loose; few medium roots in upper 8 inches; 5 percent fine and very fine gravel; very strongly acid; gradual wavy boundary.

C—25 to 60 inches; pale brown (10YR 6/3) coarse sand; single grained; loose; 5 percent fine and very fine gravel; very strongly acid.

The solum is commonly 20 to 30 inches thick. Coarse fragments make up 0 to 10 percent throughout. Reaction ranges from extremely acid to strongly acid throughout.

The Ap horizon has value and chroma of 2 or 3. The B horizon has value and chroma of 4 to 6. Texture is loamy coarse sand or coarse sand in the upper part of the B horizon and is generally coarse sand in the lower part. The C horizon has value of 6 to 8 and chroma of 3 to 6.

Charlton series

The Charlton series consists of coarse-loamy, mixed, mesic Typic Dystrochrepts. They are deep, well drained soils that have a dark yellowish brown, yellowish brown, and light olive brown fine sandy loam B horizons and an olive fine sandy loam C horizon. They formed in glacial till.

Charlton soils are on hills and ridges. Slope ranges from 3 to 40 percent.

Charlton soils formed in the same kind of material as the associated well drained Paxton soils and moderately well drained Woodbridge soils. Charlton soils are in the same landscape as the Gloucester and Scituate soils, which have a sandy substratum.

Typical pedon of Charlton fine sandy loam in an area of Charlton extremely stony fine sandy loam, 8 to 15 percent slopes in woods east of Rock-A-Dundee Road, 500 feet north of the Connecticut State line in the town of Hampden:

Ap—0 to 7 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure; very friable; 15 percent coarse fragments as much as 4 inches in diameter; very strongly acid; abrupt wavy boundary.

B21—7 to 13 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine and medium subangular blocky structure; very friable; 15 percent coarse fragments as much as 4 inches in diameter; very strongly acid; clear smooth boundary.

B22—13 to 21 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; very friable; 20 percent coarse fragments as much as 4 inches in diameter; very strongly acid; clear smooth boundary.

B23—21 to 28 inches; light olive brown (2.5Y 5/4) fine sandy loam; massive; very friable; 20 percent coarse fragments as much as 4 inches in diameter; strongly acid; clear smooth boundary.

C—28 to 60 inches; olive (5Y 5/3) fine sandy loam; massive; friable; 20 percent coarse fragments as much as 4 inches in diameter; strongly acid.

The solum is about 20 to 34 inches thick. Coarse fragments make up as much as 5 to 25 percent of the solum. Reaction is very strongly acid or strongly acid.

The Ap horizon has value of 3 or 4 and chroma of 2 to 4. The B21 horizon has hue of 7.5YR or 10YR, the B22 horizon has hue of 10YR or 2.5Y, and the B23 horizon has hue of 10YR to 5Y. The B horizon has value and chroma of 4 to 6. Fine sandy loam is the dominant texture of the B horizon, but loam and sandy loam are present in places. The upper part of the B horizon has weak, granular to weak, subangular blocky structure; the lower part of the B horizon is commonly massive. The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. Texture is fine sandy loam or sandy loam. Thin, horizontally discontinuous layers or pockets of loamy sand, 1 to 6 inches thick, are common in some pedons.

Deerfield series

The Deerfield series consists of mixed, mesic Aquic Udipsamments. These soils are deep and moderately well drained. They have a strong brown and yellowish brown loamy fine sand and loamy sand B horizon and an olive sand C horizon. Deerfield soils formed in acid, sandy glacial outwash.

Deerfield soils are on stream terraces and outwash plains. Slope ranges from 0 to 8 perecent.

Deerfield soils formed in the same kind of material as the associated excessively drained Windsor and Carver soils and the poorly drained Wareham soils. Deerfield soils are in the same landscape as the Hinckley and Merrimac soils, which have gravelly and very gravelly substrata.

Typical pedon of Deerfield loamy fine sand, 600 feet west of railroad tracks and 300 feet south of Buck Pond Road in the city of Westfield:

Ap—0 to 10 inches; dark brown (7.5YR 3/2) loamy fine sand; weak fine granular structure; friable; common fine corn roots; 5 percent fine gravel; strongly acid; abrupt irregular boundary.

B21—10 to 17 inches; strong brown (7.5YR 5/6) loamy fine sand; single grained; loose; few worm holes filled with dark brown (7.5YR 3/2) loamy sand; 5 percent fine gravel; medium acid; clear smooth boundary.

B22—17 to 25 inches; yellowish brown (10YR 5/4) loamy sand; common fine distinct reddish yellow (7.5YR 6/6) and light olive brown (2.5Y 5/4) mottles; single grained; loose; 5 percent fine gravel; medium acid; clear smooth boundary.

B3—25 to 30 inches; light olive brown (2.5Y 5/4) sand; common fine prominent yellowish brown (10YR 5/6) and gray (5Y 6/1) mottles; single grained; loose; 5 percent fine gravel; medium acid; clear smooth boundary.

C—30 to 60 inches; olive (5Y 5/3) sand; single grained; loose; 5 percent fine gravel; medium acid.

The solum is 20 to 30 inches thick. Coarse fragments make up 5 percent or less of this soil, but some pedons have strata in which fine gravel ranges to 20 percent. Reaction ranges from very strongly acid to medium acid throughout.

The Ap horizon has value of 2 to 4 and chroma of 1 to 3. The B horizon has hue of 7.5YR or 10YR in the upper part and 10YR or 2.5Y in the lower part. Value is 4 or 5, and chroma is 4 to 6. Mottles are at a depth of 15 to 30 inches. Texture is loamy fine sand in the upper part of the B horizon and loamy sand to coarse sand in the lower part. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4.

Eldridge series

The Eldridge series consists of sandy over loamy, mixed, nonacid, mesic Aquic Udorthents. These soils are deep and moderately well drained. They have a brown

and light olive brown loamy sand B horizon over a weak red very fine sand and silt C horizon. Eldridge soils formed in thin, acid glacial outwash deposits over glaciolacustrine material.

Eldridge soils are on glaciofluvial or glaciolacustrine terraces and deltas. Slope ranges from 0 to 6 percent.

Eldridge soils formed in the same kind of material as the associated, poorly drained Enosburg soils. Eldridge soils are in the same landscape as the Hinckley and Merrimac soils, which lack stratified fine sand and silt in the substratum.

Typical pedon of Eldridge loamy sand, 0 to 6 percent slopes, in a cultivated field 500 feet west of U. S. Route 10 and 50 feet north of Buck Pond Road in the city of Westfield:

Ap—0 to 10 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

B21—10 to 18 inches; brown (7.5YR 4/4) loamy sand; single grained; loose; few fine roots; strongly acid; clear smooth boundary.

B22—18 to 23 inches; light olive brown (2.5Y 5/4) loamy sand; common medium prominent yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) mottles; single grained; loose; strongly acid; clear smooth boundary.

C1—23 to 27 inches; light yellowish brown (2.5Y 6/4) sand; few fine prominent yellowish red (5YR 4/6) mottles; single grained; loose; strongly acid; abrupt smooth boundary.

IIC2—27 to 60 inches; weak red (2.5YR 5/2 and 4/2) stratified very fine sand and silt; few medium prominent dark reddish brown (5YR 3/4) mottles in the upper 6 inches; massive; friable; strongly acid.

The solum is 12 to 28 inches thick. Depth to stratified silt, fine sand, and clay generally ranges from 16 to 28 inches. Coarse fragments make up 0 to 5 percent of this soil. Unless lime is applied, reaction ranges from strongly acid to slightly acid in the A and B horizons. The C1 and IIC horizons range from strongly acid to neutral.

The Ap horizon has hue of 7.5YR and 10YR, value of 3 or 4, and chroma of 2 to 4. The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4. Depth to distinct or prominent mottles ranges from 15 to 25 inches. Texture is loamy fine sand, loamy sand, fine sand, or sand. The IIC horizon is stratified very fine sand and silt. Very thin clay strata are in some pedons.

Enfield series

The Enfield series consists of coarse-silty over sandy or sandy skeletal, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a light olive brown and light yellowish brown silt loam B horizon and a stratified gray and light brownish gray sand IIC horizon. Enfield soils formed in a silty mantle over glacial outwash.

Enfield soils are on stream terraces. Slope ranges from 0 to 15 percent.

Enfield soils formed in the same kind of material as the associated, well drained Agawam soils and moderately well drained Ninigret soils. They are on the same landscape as the Unadilla and Belgrade soils, which have a silty substratum.

Typical pedon of Enfield silt loam, 0 to 3 percent slopes, off Plumtree Road and north of the Veterans Golf Course in the city of Springfield:

O1—1-1/2 inches to 1/2 inch; loose litter of pine needles, leaves, and twigs.

O2—1/2 inch to 0; black (N 2/0) mostly decomposed litter.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many roots; very strongly acid; abrupt smooth boundary.

B21—6 to 13 inches; light olive brown (2.5Y 5/4) silt loam; weak fine subangular blocky structure; friable; many roots; strongly acid; clear smooth boundary.

B22—13 to 25 inches; light yellowish brown (2.5Y 6/4) silt loam; massive; friable; common roots to 18 inches, few below; strongly acid; clear smooth boundary.

IIC—25 to 60 inches, stratified gray (N 5/0) gravelly fine sand and light brownish gray (2.5Y 6/2) medium sand; single grained; loose; very few roots; 35 percent coarse fragments; very strongly acid.

Depth to sand and gravel ranges from 18 to 40 inches. Coarse fragments make up 0 to 5 percent of the solum and 30 to 70 percent of the IIC horizon. Reaction where the soils are unlimed is very strongly acid or strongly acid throughout.

The A horizon has value of 3 or 4, and chroma of 2 or 3. The upper part of the B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. The B22 horizon has hue of 2.5Y, value of 5 or 6, and chroma of 3 to 6. The IIC horizon is neutral or has a hue of 2.5Y. Value is 5 or 6 and chroma is 0 to 2. Texture is sand or sand and gravel.

Enosburg series

The Enosburg series consists of sandy over loamy, mixed, nonacid, frigid Mollic Haplaquents. These soils are deep and poorly drained. They have a dark gray and gray loamy sand and grayish brown sand C horizon and a light gray silt IIC horizon. They formed in thin deposits of glacial outwash over glaciolacustrine material. In this survey area, Enosburg soils are taxadjuncts to the series because they have a thinner A horizon and warmer soil temperature than are defined for the Enosburg series.

The Enosburg soils are on glaciofluvial or glaciolacustrine terraces and deltas. Slope is dominantly 0 to 3 percent.

The Enosburg soils formed in the same kind of material as the associated moderately well drained Eldridge soils. Enosburg soils are on the same landscape as Belgrade and Raynham soils, which have a silt loam or very fine sandy loam solum.

Typical pedon of Enosburg loamy sand, 1,000 feet west of U.S. Route 10 in a wooded area 50 feet north of Buck Pond Road in the city of Westfield:

O1—1-1/2 inches to 1/2 inch; dark reddish brown (5YR 2/2) partly decomposed leaf litter.

O2—1/2 inch to 0; black (5YR 2/1) humus material.

A1—0 to 3 inches; dark reddish brown (5YR 3/2) loamy sand; weak fine granular structure; friable; many roots; strongly acid; abrupt smooth boundary.

C1—3 to 10 inches; dark gray (10YR 4/1) loamy sand; common medium prominent yellowish red (5YR 4/6) and grayish brown (2.5Y 5/2) mottles; single grained; friable; many roots; medium acid; abrupt smooth boundary.

C2—10 to 13 inches; gray (10YR 5/1) loamy sand; common medium prominent dark reddish brown (5YR 3/4) and gray (5Y 5/1) mottles; single grained; loose; many roots; medium acid; abrupt smooth boundary.

C3—13 to 26 inches; grayish brown (2.5Y 5/2) sand; common medium prominent yellowish red (5YR 4/6) and light gray (5Y 7/1) mottles; single grained; loose; medium acid; abrupt smooth boundary.

IIC4—26 to 60 inches; gray to light gray (5Y 6/1) silt; massive; friable; slightly acid.

Depth to loamy sediments ranges from 16 to 34 inches. Coarse fragments make up 0 to 5 percent of the soil throughout. Reaction ranges from strongly acid to slightly acid in the sandy horizons and from slightly acid to neutral in the underlying loamy material.

Above the IIC horizon the C horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 and 2. Texture ranges from coarse sand to loamy fine sand. The IIC horizon has hue of 2.5Y or 5Y. Texture is very fine sandy loam, silt, silt loam, or light silty clay loam.

Gloucester series

The Gloucester series consists of sandy-skeletal, mixed, mesic Typic Dystrochrepts. These soils are deep and somewhat excessively drained. They have a dark yellowish brown gravelly sandy loam and yellowish brown gravelly loamy coarse sand B horizon and a light brownish gray, friable gravelly loamy coarse sand C horizon. They formed in sandy glacial till.

Gloucester soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 25 percent.

The Gloucester soils are on the same landscape as the Charlton soils, which have fine sandy loam texture throughout.

Typical pedon of Gloucester sandy loam in a wooded area of Gloucester extremely stony sandy loam, 8 to 15 percent slopes, 2 miles south of Hampden center and 400 feet east of South Road in the town of Hampden:

O1—2 inches to 1/2 inch; loose litter of leaves and twigs.

O2—1/2 inch to 0; black (N 2/0) humus; many small roots; very strongly acid.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine and medium granular structure; very friable; many fine and medium tree roots; 15 percent granite and quartzite gravel and 20 percent stones; very strongly acid; abrupt wavy boundary.

B21—3 to 11 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; weak fine and medium granular structure; very friable; many medium tree roots; 25 percent gravel, 10 percent stones; strongly acid; clear wavy boundary.

B22—11 to 25 inches; yellowish brown (10YR 5/6) gravelly loamy coarse sand; very weak fine granular structure; very friable; common medium tree roots; 40 percent gravel and cobblestones; strongly acid; clear wavy boundary.

C—25 to 60 inches; light brownish gray (2.5Y 6/2) gravelly loamy coarse sand; single grained; very friable; few fine tree roots; 45 percent gravel; strongly acid.

The solum is 20 to 30 inches thick. Rock fragments make up 10 to 40 percent of the A horizon, 20 to 50 percent of the upper part of the B horizon, and 35 to 50 percent of the lower part of the B and C horizons. These soils are very strongly acid or strongly acid.

The A1 horizon has value of 2 to 4 and chroma of 1 to 3. The upper part of the B horizon has hue of 7.5YR or 10YR, and the lower part has hue of 10YR or 2.5Y. The B horizon has value and chroma of 4 to 6 throughout. Texture is sandy loam or fine sandy loam in the upper part of the B horizon and loamy sand or loamy coarse sand in the lower part. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4. Texture is generally loamy sand, gravelly loamy sand, or loamy coarse sand.

Hadley series

The Hadley series consists of coarse-silty, mixed, nonacid, mesic Typic Udifluvents. These soils are deep and well drained. They have an olive brown and light olive brown, very fine sandy loam C horizon and an olive, very fine sand IIC horizon. Hadley soils formed in medium textured alluvium.

Hadley soils are on the flood plains of the larger rivers. Slope ranges from 0 to 6 percent.

Hadley soils formed in the same kind of material as the associated, moderately well drained Winooski and poorly drained Limerick soils. Hadley soils are in the same landscape as the Podunk soils, which have more sand or coarser sand in the subsoil.

Typical pedon of Hadley very fine sandy loam, high bottom, 0 to 3 percent slopes, in a field at the intersection of Meadow Road and West Road in the town of Longmeadow:

Ap—0 to 12 inches; very dark grayish brown (2.5Y 3/2) very fine sandy loam; weak fine and medium granular structure; very friable, slightly plastic; strongly acid; abrupt wavy boundary.

C1—12 to 19 inches; olive brown (2.5Y 4/4) very fine sandy loam; massive; friable, slightly plastic; medium acid; clear smooth boundary.

C2—19 to 26 inches; light olive brown (2.5Y 5/4) very fine sandy loam; massive; friable, slightly plastic; medium acid; abrupt smooth boundary.

IIC3—26 to 37 inches; light olive brown (2.5Y 5/4) very fine sand; massive; friable to loose, nonsticky, nonplastic; strongly acid; clear smooth boundary.

IIC4—37 to 55 inches, olive (5Y 5/4) very fine sand; common coarse distinct gray (5Y 6/1) mottles in lower part; massive; friable to loose, nonsticky, nonplastic; strongly acid; clear smooth boundary.

IIC5—55 to 66 inches; olive (5Y 5/4) very fine sand; few fine prominent gray (5Y 6/1) and yellowish red (5YR 4/8) mottles; massive; friable to loose, nonsticky, nonplastic; strongly acid.

The thickness and the number of horizons varies, and horizons other than the Ap horizon conform to the thickness and variation of the alluvial deposits. Reaction of individual horizons ranges from very strongly acid to neutral.

The Ap horizon has hue of 10YR to 5Y, value of 3 or 4, and chroma of 2 or 3. Dry value is 6 or 7. The Ap horizon is very friable or friable. The C horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 to 4. The color appears to result from organic matter content and the inherent color of the sediments. Texture, to a depth of 40 inches, is silt, silt loam, very fine sandy loam, loamy very fine sand, and very fine sand. The C horizon is generally friable or loose.

Hinckley series

The Hinckley series consists of sandy-skeletal, mixed, mesic Typic Udorthents. These soils are deep and excessively drained. They have a brown and yellowish brown gravelly loamy sand B horizon and a brown, stratified sand and gravel C horizon. Hinckley soils formed in water-sorted sand, gravel, and cobblestones.

Hinckley soils are on kames, outwash plains, and terraces. Slope ranges from 0 to 35 percent.

Hinckley soils formed in the same kind of material as the associated somewhat excessively drained Merrimac soils, the moderately well drained Sudbury soils, and the very poorly drained Scarboro soils. Hinckley soils are in

the same landscape as the Carver and Deerfield soils, which lack gravel in the subsoil.

Typical pedon of Hinckley loamy sand, 3 to 8 percent slopes, 2,600 feet southeast of the intersection of North Road and U.S. Route 10 in the city of Westfield:

O1—3 to 1-1/2 inches; loose litter that is mainly pine needles with a few oak leaves and many twigs.
O2—1-1/2 inches to 0; dark brown (10YR 3/3) partly decomposed litter; common fine and medium tree roots; extremely acid; abrupt wavy boundary.
Ap—0 to 5 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; friable; common fine and medium roots; 10 percent gravel; very strongly acid; clear smooth boundary.
B21—5 to 9 inches; brown (7.5YR 5/4) gravelly loamy sand; single grained; loose; common fine and medium roots; 20 percent gravel; very strongly acid; clear smooth boundary.
B22—9 to 14 inches; yellowish brown (10YR 5/4) gravelly loamy sand; single grained; loose; common fine and medium roots; 25 percent gravel; very strongly acid; abrupt smooth boundary.
IIC—14 to 60 inches; brown (10YR 5/3) stratified sand and gravel; single grained; loose; few roots to 22 inches; 45 percent gravel; very strongly acid.

The solum is 12 to 18 inches thick. Gravel and cobblestones make up 10 to 50 percent of the solum and 35 to 70 percent of the IIC horizon. The soils are extremely acid to medium acid, unless limed.

The Ap horizon has value of 3 or 4 and chroma of 2 or 3. The B horizon has hue of 7.5YR or 10YR and value and chroma of 4 or 5. The upper part of the B horizon, to a depth of about 10 inches, is loamy sand, loamy coarse sand, or fine sandy loam. The B horizon, below a depth of 10 inches, is loamy sand, loamy coarse sand, or coarse sand. The IIC horizon has hue of 10YR to 2.5Y, value of 5 or 6, and chroma of 2, 3, or 4. The IIC horizon is dominantly stratified sand and water-rounded gravel and cobblestones.

Hollis series

The Hollis series consists of loamy, mixed, mesic Lithic Dystrochrepts. These soils are shallow and somewhat excessively drained. They have a yellowish brown fine sandy loam B horizon that is underlain by granite bedrock. Hollis soils formed in thin deposits of glacial till.

Hollis soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 25 percent.

Hollis soils formed in the same kind of material as the associated deep, well drained Paxton and Charlton soils. Hollis soils are in the same landscape as the Gloucester and Montauk soils, which are deep to bedrock.

Typical pedon of Hollis fine sandy loam in an area of Charlton-Rock outcrop-Hollis complex, 3 to 15 percent slopes; 2,400 feet south of the intersection of Monson Road and Glendale Road in the town of Wilbraham:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; very friable; 15 percent coarse fragments; medium acid; abrupt smooth boundary.
B21—7 to 11 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine and medium subangular blocky structure; friable; 15 percent coarse fragments; strongly acid; clear smooth boundary.
B22—11 to 14 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; 15 percent coarse fragments; strongly acid; abrupt smooth boundary.
R—14 inches; granite bedrock.

Depth to rock ranges from 10 to 20 inches. Content of coarse fragments ranges from 5 to 25 percent. Reaction, where this soil is unlimed, is strongly acid or very strongly acid.

The A horizon has value of 3 or 4 and chroma of 2 or 3. The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. The B horizon is commonly fine sandy loam but ranges to sandy loam.

Holyoke series

The Holyoke series consists of loamy, mixed, mesic Lithic Dystrochrepts. These soils are shallow and somewhat excessively drained. They have a brown very fine sandy loam B horizon that is underlain by basalt or associated Triassic Age bedrock. Holyoke soils formed in a thin mantle of windblown material that, in places, is mixed with glacial till.

The Holyoke soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 45 percent.

Holyoke soils formed in the same kind of material as the associated deep, well drained Broadbrook soils. They are on the same landscape as the Hollis and Charlton soils, which are sandier. The Holyoke soils are shallow, while the Charlton soils are deep.

Typical pedon of Holyoke very fine sandy loam in an area of Rock outcrop-Holyoke complex, steep, 800 feet southeast of parking lot on Mount Tom in the city of Holyoke:

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) very fine sandy loam; weak fine and medium granular structure; very friable; many roots; 15 percent coarse fragments; very strongly acid; abrupt smooth boundary.
B2—4 to 12 inches; brown (7.5YR 4/4) very fine sandy loam; weak fine and medium granular structure; very friable; many fine medium and coarse roots; 15 to 20 percent coarse fragments; very strongly acid; abrupt smooth boundary.
R—12 inches; red sandstone bedrock.

Depth to bedrock ranges from 10 to 20 inches. The content of small, angular rock fragments ranges from 15 to 20 percent. These soils are very strongly acid or strongly acid, except where lime has been applied. Textures are commonly very fine sand and silt loam.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. The B horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6.

Limerick series

The Limerick series consists of coarse-silty, mixed, nonacid, mesic, Typic Fluvaquents. These soils are deep and poorly drained. They have a dark grayish brown silt loam C horizon over a dark gray, stratified, very fine sand, very fine sandy loam, and silt C horizon. They formed in medium textured alluvium.

Limerick soils are on the flood plains. Slope ranges from 0 to 3 percent.

The Limerick soils formed in the same kind of material as the associated well drained Hadley and moderately well drained Winooski soils. Limerick soils are on the same landscape as the Podunk and Rumney soils, which have more sand or coarser sand in the subsoil.

Typical pedon of Limerick silt loam in a hayfield, 750 feet northwest of the intersection of Little River Road, Feeding Hills Road, and Pontoosic Road, in the city of Westfield:

Ap—0 to 12 inches; very dark grayish brown (2.5Y 3/2) silt loam; many fine prominent olive gray (5Y 4/2) and brown (10YR 4/3) mottles; weak fine granular structure; very friable, nonplastic and slightly sticky; medium acid; abrupt smooth boundary.

C1—12 to 24 inches; dark grayish brown (2.5Y 4/2) silt loam; common medium prominent yellowish red (5YR 4/6), dark yellowish brown (10YR 4/4), gray (5Y 5/1), and greenish gray (5GY 5/1) mottles; massive; friable, nonplastic, and nonsticky; medium acid; clear smooth boundary.

C2g—24 to 60 inches; dark gray (5Y 4/1) thinly stratified very fine sand, very fine sandy loam, and silt; massive; friable, nonplastic, and nonsticky; medium acid.

Reaction throughout this soil ranges from medium acid to neutral. Textures are commonly silt loam or very fine sandy loam.

The Ap horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3.

The C horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 1 or 2. This horizon commonly has distinct to prominent mottles of red, brown, and gray.

Ludlow series

The Ludlow series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and moderately well drained. They have a dark reddish brown and reddish brown loam B horizon over a reddish brown loam fragipan. They formed in glacial till derived mainly from reddish sandstone and shale.

Ludlow soils are on the sides of hills and ridges. Slope ranges from 0 to 15 percent.

Ludlow soils formed in the same kind of material as the associated well drained Wethersfield soils and poorly drained Wilbraham soils. Ludlow soils are on the same landscape as the Paxton and Woodbridge soils, which are yellower in color.

Typical pedon of Ludlow loam in an area of Ludlow extremely stony loam, 0 to 8 percent slopes, in woods 500 feet north of Nash Street, 1/3 of a mile northwest of the intersection of Nash and Fuller Streets, in the town of Ludlow:

O1—1-1/2 inches to 1 inch; freshly fallen hardwood leaves and twigs.

O2—1 inch to 0; decomposed hardwood material.

A1—0 to 5 inches; very dark brown (10YR 2/2) loam; weak fine granular structure; very friable; many roots; 15 percent coarse fragments; strongly acid; clear smooth boundary.

B21—5 to 11 inches; dark reddish brown (5YR 3/3) loam; weak fine and medium subangular blocky structure; very friable; many roots; 15 percent coarse fragments; medium acid; clear smooth boundary.

B22—11 to 16 inches; reddish brown (5YR 4/4) loam; weak fine and medium subangular blocky structure; friable; common roots; 10 percent gravel; medium acid; clear smooth boundary.

B23—16 to 24 inches; reddish brown (5YR 5/4) loam; common medium distinct dark red (2.5YR 3/6) and reddish brown (5YR 4/4) mottles; weak medium and coarse subangular blocky structure; friable; few roots; 10 percent gravel; medium acid; clear smooth boundary.

Cx—24 to 60 inches; reddish brown (5YR 4/4) loam; many medium faint yellowish red (5YR 4/6) mottles; weak medium and thick platy structure; very firm, brittle; 15 percent coarse fragments; medium acid.

Depth to the fragipan ranges from 20 to 30 inches. The content of coarse fragments ranges from 5 to 20 percent in the solum and from 10 to 25 percent in the Cx horizon. Reaction ranges from very strongly acid to medium acid in the solum and from strongly acid to medium acid in the Cx horizon. The solum is silt loam or loam.

The A horizon has hue of 5YR to 10YR and value and chroma of 2 or 3. The B horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 3 to 6. The Cx horizon has hue of 2.5YR or 5YR, value of 3 or 4, and chroma of 4 to 6.

Meckesville series

The Meckesville series consists of fine loamy, mixed, mesic Typic Fragiudults. These soils are deep and well drained. They have a reddish brown silt loam B horizon over a reddish brown silty clay loam fragipan. Meckesville soils formed in glacial till derived mainly from reddish sandstone and shale of Triassic age. Meckesville soils in this survey area are taxadjuncts because they contain slightly less clay in the B2 horizon than is defined for the series.

Meckesville soils are on the tops and sides of drumlins. Slope ranges from 3 to 25 percent.

Meckesville soils formed in the same kind of material as the associated well drained Wethersfield and moderately well drained Ludlow soils. Meckesville soils are on the same landscape as the Paxton and Woodbridge soils, which have yellower subsoils.

Typical pedon of Meckesville loam in an area of Meckesville very stony loam, 3 to 8 percent slopes, in woods northeast of Buck Pond Road, 600 feet along the east side of the power line right-of-way in the city of Westfield:

Ap1—0 to 3 inches; very dark grayish brown (10YR 3/2) loam; weak fine and medium granular structure; friable, nonplastic, slightly sticky; many fine and medium roots; 10 percent gravel; very strongly acid; abrupt wavy boundary.

Ap2—3 to 8 inches; dark brown (7.5YR 3/2) fine sandy loam; weak fine granular structure; friable, nonplastic, slightly sticky; many fine and medium roots; 10 percent gravel; very strongly acid; abrupt wavy boundary.

B21—8 to 13 inches; reddish brown (5YR 4/4) silt loam; weak fine subangular blocky structure; friable, nonplastic, slightly sticky; common medium roots; many worm holes and root channels filled with material from A horizon; 15 percent gravel; very strongly acid; clear smooth boundary.

B22t—13 to 19 inches; reddish brown (2.5YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable, nonplastic, slightly sticky; common, medium roots; few pores; common thin clay films in pores and few thin clay films on peds; 15 percent gravel; very strongly acid; abrupt wavy boundary.

Bx—19 to 60 inches; reddish brown (2.5YR 4/4) silty clay loam; moderate very thick platy structure parting to weak medium platy; firm to very firm, plastic, sticky; almost continuous clay films on plate faces and in pores; 15 percent gravel; very strongly acid.

Depth to the fragipan is 18 to 30 inches. Coarse fragments make up 5 to 25 percent of this soil above the fragipan and 10 to 30 percent of the pan. Unless this soil has been limed, reaction is extremely acid or very strongly acid.

The B horizon has hue of 5YR or 2.5YR and value and chroma of 3 or 4. The upper part of the B horizon is loam or silt loam; the Bx horizon is silty clay loam.

Merrimac series

The Merrimac series consists of sandy, mixed, mesic Typic Dystrochrepts. These soils are deep and somewhat excessively drained. They have a brown and yellowish

brown sandy loam and gravelly sandy loam B horizon and a yellowish brown gravelly sand IIC horizon. Merrimac soils formed in glacial outwash.

Merrimac soils are on terraces and outwash plains. Slope ranges from 0 to 25 percent.

Merrimac soils formed in the same kind of material as excessively drained Hinckley soils, very moderately well drained Scarboro soils, and the associated poorly drained Wareham soils. Merrimac soils are in the same landscape as the Agawam and Ninigret soils, which have a thicker moderately coarse or medium textured solum over sand and gravel.

Typical pedon of Merrimac sandy loam, 0 to 3 percent slopes, in woods north of gravel pit that is northeast of Barnes Airport, 600 feet east of Apremont Road in the city of Westfield:

O1—1 inch to 0; loose litter of oak leaves, pine needles, and branches.
Ap—0 to 7 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; many fine and medium roots; 10 percent gravel; very strongly acid; abrupt wavy boundary.
B21—7 to 15 inches; brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; friable; common fine and medium roots to 12 inches, few fine and medium roots below this depth; 10 percent gravel; extremely acid; clear smooth boundary.
B22—15 to 26 inches; yellowish brown (10YR 5/4) gravelly sandy loam; massive; friable; few fine and medium roots; 20 percent gravel; very strongly acid; abrupt smooth boundary.
IIC—26 to 60 inches; yellowish brown (10YR 5/4) gravelly sand; single grained; loose; 30 percent gravel; very strongly acid.

The solum is 18 to 30 inches thick. Coarse fragments make up 5 to 30 percent of each horizon within the solum and 30 to 70 percent of the substratum. The solum ranges from extremely acid to strongly acid.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4. The upper part of the B horizon has hue of 7.5YR or 10YR; the lower part has hue of 10YR or 2.5Y. Value ranges from 3 to 6 and chroma from 3 to 8. The B horizon is fine sandy loam or sandy loam to a depth of 15 inches. It is sandy loam between 15 and 20 inches. The B horizon is sandy loam or loamy sand below a depth of 20 inches. The IIC horizon has hue of 10YR, 2.5Y, or 5Y and ranges widely in value and chroma. The IIC horizon is gravelly sand or very gravelly sand.

Montauk series

The Montauk series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and well drained. They have a yellowish brown fine sandy loam B horizon over a light brownish gray gravelly loamy sand fragipan. Montauk soils formed in glacial till.

Montauk soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 15 percent.

Montauk soils formed in the same kind of material as the associated moderately well drained Scituate soils and poorly drained Ridgebury soils. Montauk soils are in the same landscape as the Gloucester and Charlton soils, which lack a fragipan.

Typical pedon of Montauk fine sandy loam in an area of Montauk extremely stony fine sandy loam, 8 to 15 percent slopes, in woods 30 feet north of Klaus Anderson Road and 1/2 mile east of Loomis Road in the town of Southwick:

Ap—0 to 7 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure; friable; 15 percent coarse fragments; strongly acid; abrupt smooth boundary.
B21—7 to 14 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine and medium subangular blocky structure; friable; 15 to 20 percent coarse fragments; very strongly acid; clear smooth boundary.
B22—14 to 22 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; 15 to 20 percent coarse fragments; very strongly acid; abrupt smooth boundary.
IICx—22 to 60 inches; light brownish gray (10YR 6/2) gravelly loamy sand; weak medium and thick platy structure; firm, brittle; 30 percent coarse fragments; very strongly acid.

The solum is 20 to 30 inches thick and conforms closely to the depth to the underlying coarse textured till. Coarse fragments make up 5 to 20 percent of the solum and 10 to 30 percent of the IIC horizon. Unless this soil has been limed, reaction ranges from extremely acid to strongly acid.

The Ap horizon has value of 3 or 4 and chroma of 2 or 3. The upper part of the B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6; the lower part has hue of 10YR, value of 4 or 5, and chroma of 4 to 6. The B horizon has weak subangular blocky structure or is massive. The IIC horizon has hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; and chroma of 1 to 3. Texture is loamy sand, loamy fine sand, or loamy coarse sand. The IIC horizon is massive or has weak thin medium or thick platy structure. The IIC horizon is firm to very firm.

Narragansett series

The Narragansett series consists of coarse-loamy, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a yellowish brown and light olive brown very fine sandy loam B horizon and a gray sandy loam and grayish brown gravelly loamy sand C horizon. Narragansett soil formed in a mantle of very fine sandy loam over glacial till.

Narragansett soils are on the tops and sides of hills and ridges. Slope ranges from 3 to 40 percent.

Narragansett soils are associated with Charlton soils, which lack a fine sandy loam mantle. Narragansett soils are in the same landscape as the Broadbrook soils, which have a fragipan.

Typical pedon of Narragansett very fine sandy loam in an area of Narragansett extremely stony very fine sandy loam, 8 to 15 percent slopes, in woods off Ventura street, 5,200 feet south of its intersection with East Street in the town of Ludlow:

Ap—0 to 8 inches; dark brown (10YR 3/3) very fine sandy loam; weak, medium, subangular blocky structure; very friable; many fine and medium tree roots; very strongly acid; abrupt smooth boundary.
B21—8 to 22 inches; yellowish brown (10YR 5/6) very fine sandy loam; weak fine and medium subangular blocky structure; very friable; common fine and medium tree roots; very strongly acid; clear wavy boundary.
B22—22 to 28 inches; light olive brown (2.5Y 5/4) very fine sandy loam; weak medium and coarse subangular blocky structure; very friable; common medium tree roots; very strongly acid; clear wavy boundary.
C1—28 to 35 inches; gray (5Y 5/1) sandy loam; massive; friable; few medium tree roots; 10 percent gravel; very strongly acid; clear wavy boundary.
IIC2—35 to 60 inches; grayish brown (2.5Y 5/2) gravelly loamy sand; single grained; loose; 25 percent gravel; very strongly acid.

The solum is 16 to 30 inches thick. Coarse fragments make up 0 to 20 percent of the solum. Unless these soils are limed, they are very strongly acid or strongly acid throughout.

The Ap horizon has value and chroma of 3 or 4. The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 4 to 8. The lower part of the B horizon tends to have yellower hue and lower chroma. The B horizon is dominantly very fine sandy loam, but silt loam is present in places. The IIC horizon has hue of 5YR to 5Y. It is sandy loam, coarse sandy loam, or loamy sand.

Ninigret series

The Ninigret series consists of coarse-loamy over sandy or sandy-skeletal, mixed, mesic Aquic Dystrochrepts. These soils are deep and moderately well drained. They have a yellowish brown fine sandy loam and mottled, pale brown, sandy loam B horizon and a mottled, gray sand IIC horizon. Ninigret soils formed in glacial outwash.

Ninigret soils are on stream terraces. Slope ranges from 0 to 6 percent.

Ninigret soils formed in the same kind of material as the associated, well drained Agawam soils. Ninigret soils are in the same landscape as the Enfield soils, which have a very fine sandy loam or silt loam B horizon.

Typical pedon of Ninigret fine sandy loam, 0 to 6 percent slopes, in a hay field 2,900 feet northeast of the intersection of Southwick Street and North Westfield Street in the town of Agawam:

Ap—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; friable; many fine grass roots; very strongly acid; abrupt smooth boundary.

B21—10 to 18 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; very friable; few fine grass roots; strongly acid; clear smooth boundary.

B22—18 to 25 inches; yellowish brown (10YR 5/4) fine sandy loam; few medium distinct grayish brown (10YR 5/2) mottles; weak fine granular structure; friable; strongly acid; gradual smooth boundary.

B23—25 to 30 inches; pale brown (10YR 6/3) sandy loam; common fine and medium distinct grayish brown (10YR 5/2), brown (7.5YR 4/4), and strong brown (7.5YR 5/6) mottles; massive; friable; strongly acid; clear smooth boundary.

IIC—30 to 60 inches; gray (10YR 6/1) sand; many coarse prominent yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) mottles; single grained; loose; strongly acid.

The solum is 20 to 30 inches thick. Coarse fragments make up 0 to 5 percent of the solum. Unless this soil has been limed, reaction is very strongly acid or strongly acid throughout.

The Ap horizon has value and chroma of 2 or 3. The upper part of the B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. The lower part of the B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 6. Depth to mottling is 15 to 24 inches. The B horizon is fine sandy loam or sandy loam. The C horizon has hue of 10YR to 5Y. It is loamy fine sand, loamy sand, fine sand, or sand.

Paxton series

The Paxton series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and well drained. They have a dark yellowish brown and olive brown fine sandy loam B horizon over a dark gray fine sandy loam fragipan. Paxton soils formed in glacial till.

Paxton soils are on the tops and sides of drumlins. Slope ranges from 3 to 25 percent.

Paxton soils formed in the same kind of material as the associated moderately well drained Woodbridge soils and poorly drained Ridgebury soils. Paxton soils are in the same landscape as the Charlton soils, which lack a fragipan.

Typical pedon of Paxton fine sandy loam in an area of Paxton extremely stony fine sandy loam, 8 to 15 percent slopes, 2,900 feet south and 3,800 feet east of the intersection of Tinkham Road and South Main Street and 50 feet south of lane in an orchard in the town of Wilbraham:

Ap—0 to 6 inches; dark brown (10YR 3/3) fine sandy loam; moderate fine and medium granular structure; friable; many roots; 5 percent gravel; neutral; abrupt smooth boundary.

B21—6 to 11 inches; dark yellowish brown (10YR 4/4) fine sandy loam; moderate fine and medium subangular blocky structure; friable; many roots; 5 percent gravel; medium acid; clear smooth boundary.

B22—11 to 21 inches; olive brown (2.5Y 4/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; common roots; 5 percent gravel; medium acid; gradual smooth boundary.

B23—21 to 30 inches; olive brown (2.5Y 4/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; common roots; 10 percent gravel; medium acid; clear smooth boundary.

Cx—30 to 60 inches; dark gray (5Y 4/1) fine sandy loam; massive; very firm, brittle; 15 percent gravel; slightly acid.

Depth to the fragipan is about 20 to 36 inches. The content of coarse fragments ranges from about 5 to 25 percent throughout. The solum and the Cx horizon range from loam to sandy loam. Unless these soils are limed, they are strongly acid to slightly acid throughout.

The Ap horizon has value of 3 or 4 and chroma of 2 to 4. The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 3 or 4. A few small yellowish brown mottles are in some pedons in the upper few inches of the fragipan or just above it. The Cx horizon has hue of 5Y to 2.5Y. It is sandy loam or fine sandy loam.

Podunk series

The Podunk series consists of coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts. These soils are deep and moderately well drained. They have a yellowish brown and olive brown fine sandy loam B horizon and a light olive brown and light brownish gray sandy loam C horizon. Podunk soils formed in moderately coarse textured alluvium.

Podunk soils are on the flood plains of the medium and large streams. Slope ranges from 0 to 3 percent.

Podunk soils formed in the same kind of material as the associated poorly drained Rumney soils and the associated very poorly drained Saco Variant soils. Podunk soils are in the same landscape as the Suncook soils, which are better drained, and the Hadley and Winooski soils, which have finer textures.

Typical pedon of Podunk fine sandy loam in a hayfield, 300 feet south of abandoned railroad and 300 feet east of the Swift River, 1/2 mile southwest of Crystal Lake in the town of Palmer:

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure; very friable; medium acid; abrupt wavy boundary.

B21—9 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; strongly acid; clear smooth boundary.

B22—20 to 24 inches; olive brown (2.5Y 4/4) fine sandy loam; many fine distinct olive gray (5Y 5/2) and brown (7.5YR 5/4) mottles; weak fine subangular blocky structure; friable; strongly acid; clear smooth boundary.

C1—24 to 32 inches; light olive brown (2.5Y 5/4) sandy loam; many fine distinct yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) mottles; massive; friable; strongly acid; clear smooth boundary.
C2—32 to 60 inches; light brownish gray (2.5Y 6/2) sandy loam; massive; strongly acid.

The solum is about 24 inches thick. These soils are very strongly acid or strongly acid. Depth to mottling is 16 to 24 inches.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. The B horizon has hue of 10YR, 2.5Y, or 5Y and value and chroma of 3 to 6. The B horizon is fine sandy loam or sandy loam. The C horizon has hue of 10YR to 5Y. The C horizon is sandy loam to sand.

Pollux series

The Pollux series consists of coarse-loamy, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a dark yellowish brown and yellowish brown fine sandy loam B horizon and a brown sandy loam C horizon over dark reddish brown, light reddish brown, and yellowish brown varved silts. They formed in glacial outwash underlain by glaciolacustrine deposits.

Pollux soils are on outwash terraces and deltas. Slope ranges from 0 to 15 percent.

Pollux soils formed in the same kind of material as the associated moderately well drained Amostown soils. Pollux soils are in the same landscape as the Unadilla, Belgrade, and Raynham soils, which are silty throughout.

Typical pedon of Pollux fine sandy loam, 0 to 3 percent slopes, in woods in Robinson State Park, about 3,700 feet northeast of the intersection of North Street and Westfield Street in the town of Agawam:

Ap—0 to 6 inches; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.
B21—6 to 14 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.
B22—14 to 22 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.
C1—22 to 34 inches; brown (10YR 5/3) sandy loam; weak fine granular structure; friable; strongly acid; abrupt smooth boundary.
IIC2—34 to 38 inches; dark reddish brown (5YR 3/3) silt loam; massive; firm in place, friable in hand; 10 percent coarse fragments consisting of 1/4 to 1 inch gravel; strongly acid; abrupt smooth boundary.
IIC3—38 to 60 inches; dark reddish brown (5YR 3/3), light reddish brown (5YR 6/3), and yellowish brown (10YR 5/4) varved silts; massive; firm in place, friable in hand; strongly acid.

The solum is 22 to 38 inches thick. Depth to the silty material is 25 to 40 inches. The content of coarse fragments ranges from 0 to 10 percent throughout. Except where these soils are limed, reaction is very strongly acid or strongly acid in the solum and very strongly acid to neutral in the substratum.

The Ap horizon has hue of 10YR or 2.5Y and value and chroma of 2 to 4. Texture ranges from sandy loam to loam. The B horizon has hue of 7.5YR to 2.5Y and value and chroma of 4 to 6. Texture ranges from sandy loam to loam. In a few pedons the lower part of the B horizon is loamy sand. The IIC horizon has hue of 2.5YR to 5Y, value of 3 to 6, and chroma of 2 to 4. Texture ranges from silt loam to very fine sandy loam. This horizon is thinly stratified or varved silt, silt loam, and very fine sand. Very thin clay varves are present in some pedons.

Raynham series

The Raynham series consists of coarse-silty, mixed, nonacid, mesic Aeric Haplaquepts. These soils are deep and poorly drained. They have a mottled, olive brown and grayish brown silt loam B horizon and a mottled, dark grayish brown and olive gray, stratified very fine sand and silt C horizon. Raynham soils formed in glaciolacustrine deposits.

Raynham soils are on old lakebeds. Slope ranges from 0 to 3 percent.

Raynham soils formed in the same kind of material as the associated, moderately well drained Belgrade soils and well drained Unadilla soils. Raynham soils are on the same landscape as Buxton Variant soils, which have varved silt and clay substrata.

Typical pedon of Raynham silt loam in hayland, about 500 feet northeast of the intersection of Chicopee Falls Road and West Street, in the town of Ludlow:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; friable; many fine grass roots; strongly acid; abrupt smooth boundary.
B21—7 to 11 inches; olive brown (2.5Y 4/4) silt loam; few fine distinct light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/6) mottles; weak fine and medium granular structure; friable; common fine grass roots; medium acid; clear wavy boundary.
B22—11 to 17 inches; grayish brown (2.5Y 5/2) silt loam; many coarse distinct yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) mottles; weak very fine subangular blocky structure; friable; few fine grass roots; medium acid; clear wavy boundary.
B23—17 to 24 inches; olive brown (2.5Y 4/4) silt loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; very few fine grass roots; medium acid; clear wavy boundary.
C—24 to 60 inches; dark grayish brown (2.5Y 4/2) and olive gray (5Y 5/2) stratified very fine sand and silt; many fine distinct olive brown (2.5Y 4/4) and grayish brown (10YR 5/2) mottles; massive; friable; very few fine grass roots to 26 inches; medium acid.

The solum is 18 to 30 inches thick. Reaction is strongly acid to medium acid in the solum and medium acid to neutral in the C horizon.

The Ap horizon has hue of 10YR to 2.5Y, value of 3 or 4, and chroma of 1 or 2. The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 to 4. Texture is silt loam and very fine sandy loam. The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 1 or 2. The C horizon is thinly stratified silt and very fine sand.

Ridgebury series

The Ridgebury series consists of coarse-loamy, mixed, mesic Aeric Fragiaquepts. These soils are deep and poorly drained. They have a mottled olive gray sandy loam B horizon over a mottled light olive brown and olive sandy loam fragipan. Ridgebury soils formed in glacial till.

Ridgebury soils are in depressions and drainageways and on seepy hillsides on uplands. Slope ranges from 0 to 8 percent.

Ridgebury soils formed in the same kind of material as the associated well drained Paxton soils and moderately well drained Woodbridge soils. Ridgebury soils are in the same landscape as the Charlton and Gloucester soils, which lack a fragipan.

Typical pedon of Ridgebury sandy loam in an area of Ridgebury extremely stony sandy loam, 3 to 8 percent slopes, 1/4 mile west of Ridge Road and 500 feet north of Monson Road in the town of Wilbraham:

A1—0 to 6 inches; black (10YR 2/1) sandy loam; moderate fine granular structure; very friable; many fine roots; 5 to 10 percent gravel and stones that are dominantly mica schist; strongly acid; abrupt irregular boundary.

Bg—6 to 16 inches; olive gray (5Y 5/2) sandy loam; common medium and coarse distinct yellowish brown (10YR 5/4) mottles; massive; friable; common fine roots; 10 percent pebbles and stones, dominantly mica schist; some mixing of A1 horizon in worm and root channels; medium acid; abrupt wavy boundary.

C1X—16 to 26 inches; light olive brown (2.5Y 5/4) sandy loam; many medium prominent gray (N 5/0) mottles having strong brown (7.5YR 5/8) rinds; weak very coarse prismatic structure parting to coarse angular blocky; very firm; few fine roots in worm channels; common fine and medium vesicular pores, some with thin patchy silt or clay coats; 10 to 15 percent pebbles and stones, mainly mica schist; medium acid; abrupt wavy boundary.

C2X—26 to 60 inches; olive (5Y 5/3) sandy loam; many medium prominent strong brown (7.5YR 5/8) and gray (N 5/0) mottles; weak very coarse prismatic structure parting to thick platy; prisms separated by gray (N 5/0) vertical streaks that are 1/2 to 1 inch wide and have strong brown (7.5YR 5/8) rinds; very firm; few fine roots between prisms; common fine and medium vesicular pores that have thin patchy silt or clay coats; 10 to 15 percent pebbles and stones, mainly mica schist; medium acid.

Depth to the fragipan ranges from 10 to 25 inches. Content of rock fragments—angular pebbles and stones of granite, gneiss, and schist—ranges from 5 to 35 percent. Reaction in unlimed soils ranges from very strongly acid to medium acid.

The A1 horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2. Texture ranges from sandy loam to loam. The Bg horizon has hue of 10YR, 2.5Y, or 5Y; value of 4, 5, or 6; and chroma of 2 or less. The Bg horizon has few or common, prominent or distinct mottles. Texture is sandy loam, fine sandy loam, or loam. The Bg horizon is massive or has weak to moderate, very thin, thin, or medium plates. The Cx horizon has hue of 10YR, 2.5Y, or 5Y; value of 3 to 6; and chroma of 1 to 4. Mottles in this horizon are common or many and distinct or prominent. They generally become less abundant with depth. Texture is sandy loam, fine sandy loam, coarse sandy loam, and loam. The Cx horizon is massive or has medium to very coarse prismatic structure.

Rumney series

The Rumney series consists of coarse-loamy, mixed, acid, mesic Typic Fluvaquents. These soils are deep and poorly drained. They have a mottled, very dark gray fine sandy loam B horizon and a very dark gray sandy loam and stratified, very dark gray sandy loam and loamy sand C horizon. Rumney soils formed in moderately coarse textured alluvium.

Rumney soils are on the flood plains of medium and large streams. Slope ranges from 0 to 3 percent.

Rumney soils formed in the same kind of material as the associated moderately well drained Podunk soils and the associated very poorly drained Saco Variant soils. Rumney soils are in the same landscape as the Hadley and Winooski soils, which are better drained and have finer textures.

Typical pedon of Rumney fine sandy loam in an idle field 500 feet west of railroad crossing on Brickyard Road, south of Brickyard Road and west of and adjacent to Brickyard Brook in the city of Westfield:

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak coarse granular structure; friable; many fine grass roots; strongly acid; abrupt smooth boundary.

B21—5 to 8 inches; very dark gray (10YR 3/1) fine sandy loam; many fine and medium prominent, red (2.5YR 4/8) and dusky red (10R 3/4) mottles; weak coarse granular structure; friable; few fine grass roots; strongly acid; clear wavy boundary.

B22—8 to 16 inches; very dark gray (10YR 3/1) fine sandy loam; many coarse prominent gray (N 5/0) and many fine prominent red (2.5YR 4/8) mottles; weak medium and coarse granular structure; friable; few fine grass roots; strongly acid; clear wavy boundary.

B23—16 to 26 inches; very dark gray (10YR 3/1) fine sandy loam; weak medium and coarse granular structure; friable; few fine grass roots; strongly acid; abrupt smooth boundary.

C1—26 to 36 inches; very dark gray (10YR 3/1) sandy loam; massive; very friable; strongly acid; abrupt smooth boundary.

IIC2—36 to 60 inches; very dark gray (10YR 3/1) stratified fine sandy loam, sandy loam, and loamy sand; massive to single grained; very friable to loose; strongly acid.

Solum thickness is generally about 25 inches but in places is thicker. Reaction in unlimed areas is very strongly acid or strongly acid. The solum is fine sandy loam or sandy loam. These soils are mottled near the surface, but mottles are sometimes faint or entirely absent in the substratum.

The A horizon has hue of 10YR or 2.5Y; value of 2, 3, or 4; and chroma of 1 or 2. The B horizon has hue of 10YR, 2.5Y, or 5Y; value of 3 through 6; and chroma of 1 or 2. The C horizon has hue of 10YR to 5Y, value of 3 to 6, and chroma of 1 or 2. Texture is fine sandy loam, sandy loam, or loamy sand.

Saco Variant

The Saco Variant consists of coarse-silty, mixed, nonacid, mesic Aeric Fluvaquents. These soils are deep and very poorly drained. They have a very dark grayish brown and dark gray silt loam A horizon and a gray and light olive brown silt loam B horizon. The C horizon is olive gray silt loam. Saco Variant soils formed in medium textured acid alluvium.

Saco Variant soils are on flood plains of streams. Slope ranges from 0 to 3 percent.

Saco Variant soils formed in the same kind of material as the associated well drained Hadley, moderately well drained Winooski, and poorly drained Limerick soils. Saco Variant soils are in the same landscape as the Scantic Variant and Raynham soils, which are above the flood plain and formed in lakebed sediment.

Typical pedon of Saco Variant silt loam in woods 50 feet north of Meadow Road and 300 feet west of railroad tracks in the town of Longmeadow:

A11—0 to 6 inches; very dark grayish brown (2.5Y 3/2) silt loam; weak fine and medium granular structure; very friable, sticky and slightly plastic; few fine fibrous roots; very strongly acid; abrupt wavy boundary.

A12—6 to 10 inches, dark gray (N 4/0) silt loam; weak medium subangular blocky structure; very friable, sticky and slightly plastic; few fine fibrous roots; dark red (2.5YR 3/6) pieces of buried and decayed vegetation; very strongly acid; abrupt wavy boundary.

A13—10 to 14 inches; very dark grayish brown (10YR 3/2) silt loam; few fine distinct greenish gray (5GY 5/1) mottles; weak medium subangular blocky structure; friable, sticky and slightly plastic; few fine fibrous roots; very strongly acid; clear smooth boundary.

A2g—14 to 22 inches; dark gray (N 4/0) silt loam; few fine prominent light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable to slightly firm,

sticky and slightly plastic; few fine fibrous roots in upper 2 inches, none below; very strongly acid; clear smooth boundary.

B21—22 to 26 inches; gray (N 5/0) silt loam; many medium prominent light olive brown (2.5Y 5/6), dark reddish brown (5YR 3/4), and yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable to slightly firm, sticky and slightly plastic; very strongly acid; abrupt smooth boundary.

B22—26 to 30 inches; light olive brown (2.5Y 5/4) silt loam; many coarse prominent dark gray (5Y 4/1), yellowish red (5YR 4/8), and red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable to slightly firm, slightly sticky and nonplastic; medium acid; clear smooth boundary.

C—30 to 60 inches; olive gray (5Y 4/2) silt loam; common fine prominent greenish gray (5GY 5/1) and yellowish brown (10YR 5/4) mottles; massive; friable to slightly firm, sticky and slightly plastic; dark reddish brown (2.5YR 3/4) stains in old root channels; strongly acid.

Texture is silt loam or very fine sandy loam to a depth of 40 inches. Coarse textured horizons are present below a depth of 40 inches in many pedons. Reaction ranges from very strongly acid to neutral throughout.

The C horizon is neutral or has hue of 10YR to 5Y; the matrix has chroma of 0 to 2.

Scantic Variant

The Scantic Variant consists of coarse-silty over clayey, mixed, nonacid, mesic Typic Haplaquepts. These soils are deep and poorly drained. They have a mottled, very dark gray, grayish brown, and gray silt loam B horizon and a mottled gray silty clay C horizon. Scantic Variant soils formed in glaciolacustrine deposits.

Scantic Variant soils are in depressions and along drainageways in former lakebeds. Slope ranges from 0 to 3 percent.

Scantic Variant soils formed in the same kind of material as the associated moderately well drained Buxton Variant soils. Scantic Variant soils are in the same landscape as the Merrimac and Sudbury soils, which are underlain by sand and gravel.

Typical pedon of Scantic Variant silt loam, 2,000 feet northeast of Scott Corners in the town of Ludlow:

A1—0 to 8 inches; black (10YR 2/1) silt loam; soft clods separating to moderate medium and fine granular structure; friable; medium acid; clear smooth boundary.

B21g—8 to 10 inches; very dark gray (10YR 3/1) silt loam; common medium faint dark grayish brown (2.5Y 4/2) and olive brown (2.5Y 4/4) mottles; weak to moderate fine and medium subangular blocky structure; friable; medium acid; clear smooth boundary.

B22g—10 to 15 inches; grayish brown (2.5Y 5/2) silt loam; common medium distinct yellowish brown (10YR 5/8) and dark grayish brown (2.5Y 4/2) mottles; moderate medium and coarse prismatic structure; friable; few thin very dark gray (10YR 3/1) clay films on prism faces; worm and root channels coated with black (10YR 2/1) films; medium acid; clear smooth boundary.

B23g—15 to 20 inches; gray (N 5/0) silt loam; common medium distinct mottles of gray (5Y 5/1) and yellowish brown (10YR 5/8); moderate coarse prismatic structure; slightly firm; dark reddish brown (5YR 3/3) blotches in worm holes and root channels; neutral; clear smooth boundary.

IIB3—20 to 24 inches; gray (5Y 5/1) loam; common fine and medium distinct gray (N 5/0) and yellowish brown (10YR 5/8) mottles; weak to moderate coarse prismatic structure; friable; neutral.

IIICg—24 to 60 inches; gray (5Y 5/1) silty clay; many medium distinct dark yellowish brown (10YR 4/4) and yellowish red (5YR 4/6) mottles; varved; massive; firm; neutral; abrupt smooth boundary.

The solum is 20 to 36 inches thick. Reaction ranges from strongly acid to neutral.

The A horizon has hue of 10YR or 2.5Y; value of 2, 3, or 4; and chroma of 0, 1, or 2. Silt loam is the common texture. The B horizon is either neutral in color and has value of 4 to 6, or it has colors in hue of 10YR, 2.5Y, or 5Y. Value is 3 to 6, and chroma is 1 or 2. Generally, mottles are few or common, fine or medium, and distinct. In some pedons, however, there are many, coarse, prominent mottles. Texture is silt loam, heavy silt loam, or loam. Colors of the C horizon are commonly olive brown to gray or greenish gray. In places this horizon is faintly mottled or is not mottled at all.

Scarboro series

The Scarboro series consists of sandy, mixed, mesic Histic Humaquepts. These soils are deep and very poorly drained. They have a black sandy loam A1 horizon; a gray loamy fine sand and mottled, gray loamy sand C horizon; and an olive gray, stratified gravelly coarse sand, fine sand, and gray sand IIC horizon. Scarboro soils formed in glacial outwash derived mainly from gneiss and granite. In this survey area, Scarboro soils are taxadjuncts because they lack a thick, black, organic surface layer as defined in the Scarboro series.

Scarboro soils are in depressions and drainageways on terraces. Slope ranges from 0 to 3 percent.

Scarboro soils formed in the same kind of material as the associated moderately well drained Sudbury soils and poorly drained Wareham soils.

Typical pedon of Scarboro fine sandy loam in woods in a depression 100 feet south of North Road, 1/4 mile west of Route 10 in the city of Westfield:

O1—loose leaf litter.

A1—0 to 11 inches; black (10YR 2/1) fine sandy loam; moderate medium granular structure; very friable and nonsticky; many roots; strongly acid; abrupt smooth boundary.

A2—11 to 13 inches; light olive gray (5Y 6/2) loamy fine sand; single grained; friable; common roots; strongly acid; clear smooth boundary.

C1g—13 to 17 inches; gray (5Y 5/1) loamy fine sand; single grained; friable; few roots; strongly acid; clear smooth boundary.

C2g—17 to 24 inches; gray (5Y 5/1) loamy sand; many coarse prominent brownish yellow (10YR 6/6) and gray (5Y 5/1) mottles; single grained; friable; few roots; strongly acid; abrupt smooth boundary.

IIC3—24 to 60 inches; olive gray (5Y 5/2) stratified gravelly coarse sand, fine sand, and gray (5Y 5/1) medium sand, each in layers about 5 inches thick; single grained; loose; about 30 percent gravel in the coarse sand layer; strongly acid.

The solum is 15 to 30 inches thick. Reaction is very strongly acid or strongly acid.

The A1 horizon is black when moist. The A2 horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 0 to 2. The A2 horizon is faintly mottled in some pedons. Texture is loamy fine sand to sand. The C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 2 or less. Texture is loamy sand or sand.

Scituate series

The Scituate series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and moderately well drained. They have a yellowish brown fine sandy loam and mottled, dark yellowish brown gravelly sandy loam B horizon over a mottled, brown

gravelly loamy sand fragipan. Scituate soils formed in glacial till.

Scituate soils are on the tops and sides of drumlins and in the small valleys between drumlins. Slope ranges from 3 to 8 percent.

Scituate soils formed in the same kind of material as the associated well drained Montauk soils. Scituate soils are in the same landscape as the Charlton soils, which lack a fragipan.

Typical pedon of Scituate fine sandy loam, 3 to 8 percent slopes, in a cornfield 50 feet north of Klaus Anderson Road and 0.6 miles east of Loomis Road in the town of Southwick:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; friable; 10 percent gravel; medium acid; abrupt smooth boundary.

B21—7 to 18 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; 10 percent gravel; medium acid; clear smooth boundary.

B22—18 to 25 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; common fine and medium prominent dark reddish brown (5YR 3/3) and yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; 20 percent fine and medium gravel; medium acid; abrupt smooth boundary.

IICx—25 to 60 inches; brown (10YR 5/3) gravelly loamy sand; few fine prominent pale brown (10YR 6/3) and yellowish red (5YR 5/6) mottles; weak thick platy structure; very firm; 25 percent fine and medium gravel; strongly acid.

The solum is 18 to 30 inches thick, conforming closely to the depth to the fragipan. Coarse fragments make up 5 to 20 percent of the soil above the fragipan and 15 to 50 percent of the pan. Except where this soil has been limed, reaction ranges from medium acid to extremely acid.

The Ap horizon is very dark grayish brown (10YR 3/2) or dark brown (10YR 3/3). The B21 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. The matrix on the lower part of the B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 4. Mottles in the B22 horizon are common or many; fine, medium, or coarse; and distinct or prominent. Texture of the B horizon is sandy loam or fine sandy loam. The IIC horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. Texture is loamy sand or gravelly loamy sand.

Sudbury series

The Sudbury series consists of sandy, mixed, mesic Aquic Dystrochrepts. These soils are deep and moderately well drained. They have a yellowish brown fine sandy loam and mottled, yellowish brown gravelly sandy loam B horizon over a brown gravelly sand C horizon. Sudbury soils formed in glacial outwash.

Sudbury soils are in depressions and low areas on terraces and outwash plains. Slope ranges from 0 to 8 percent.

Sudbury soils formed in the same kind of material as the associated excessively drained Hinckley soils, somewhat excessively drained Merrimac soils, and poorly drained Scarboro soils. Sudbury soils are on the same landscape as the Windsor and Carver soils, which do not have mottles.

Typical pedon of Sudbury fine sandy loam, 0 to 8 percent slopes, in an area of idle land, 1/4 mile south of Twin Hills Country Club along the Longmeadow-East Longmeadow town line in the town of Longmeadow:

Ap—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam; weak fine and medium granular structure, friable; less than 10 percent fine gravel; very strongly acid; abrupt wavy boundary.

B21—10 to 13 inches; yellowish brown (10YR 5/6) fine sandy loam; moderate medium platy structure; firm in place, friable when dislodged; less than 10 percent fine gravel; very strongly acid; clear smooth boundary.

B22—13 to 18 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium subangular blocky structure, friable; less than 10 percent fine gravel; very strongly acid; clear smooth bounday.

B23—18 to 23 inches; yellowish brown (10YR 5/4) gravelly sandy loam; common medium prominent strong brown (7.5YR 5/6) and grayish brown (2.5Y 5/2) mottles; weak fine subangular blocky structure; friable; 20 percent gravel; very strongly acid; abrupt smooth boundary.

IIC—23 to 60 inches; brown (10YR 5/3) gravelly sand; common medium prominent strong brown (7.5YR 5/6) and light brownish gray (2.5Y 6/2) mottles; single grained; loose; about 35 percent gravel; very strongly acid.

Depth to stratified sand and gravel ranges from 18 to 30 inches. The solum commonly contains about 5 to 20 percent gravel. Coarse fragments in the substratum are 30 to 70 percent gravel and cobbles. Reaction in unlimed soils ranges from extremely acid to strongly acid.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2, 3, or 4. The B horizon has hue of 7.5YR or 10YR, and value and chroma of 3 through 5. The B horizon commonly has distinct or prominent mottles at a depth of about 18 inches. Texture of the upper part of the B horizon is fine sandy loam or sandy loam. Texture of the lower part of the B horizon is sandy loam, gravelly sandy loam, loamy sand, or gravelly loamy sand. The IIC horizon has hue of 10YR through 5Y. This horizon is stratified sand, gravel, and cobbles, or has a texture of gravelly sand or very gravelly sand.

Suncook series

The Suncook series consists of mixed, mesic Typic Udipsamments. These soils are deep and excessively drained. They have an olive brown, light brownish gray, and light olive brown medium sand C horizon over a yellowish brown sand IIC horizon. Suncook soils formed in sandy alluvium.

Suncook soils are on natural levees. Slope ranges from 0 to 5 percent.

Suncook soils are associated with moderately well drained Podunk and poorly drained Rumney soils. Suncook soils are in the same landscape as the Hadley and Winooski soils, which are finer textured and are on flood plains.

Typical pedon of Suncook loamy fine sand, 0 to 5 percent slopes, 6,300 feet north-northeast of the intersection of North Street and North Westfield Street, on the south bank of the Westfield River in Robinson State Park in the town of Agawam:

O1—2 inches to 0; litter of newly fallen leaves.

Ap1—0 to 2 inches; very dark grayish brown (2.5Y 3/2) loamy fine sand; weak fine and very fine granular structure; very friable; many fine medium and coarse roots; strongly acid; abrupt smooth boundary.

Ap2—2 to 10 inches; dark grayish brown (2.5Y 4/2) loamy fine sand; weak fine granular structure; friable; common fine and medium roots and few coarse roots; strongly acid; clear smooth boundary.

C1—10 to 13 inches; olive brown (2.5Y 4/4) medium sand; single grained; loose; few roots; strongly acid; abrupt smooth boundary.

C2—13 to 16 inches; light brownish gray (2.5Y 6/2) and grayish brown (2.5Y 5/2) medium sand; single grained; loose; few roots; strongly acid; clear smooth boundary.

C3—16 to 24 inches; light olive brown (2.5Y 5/4) medium sand; single grained; loose; few roots; strongly acid; abrupt smooth boundary.
Ab—24 to 28 inches; dark brown (10YR 3/3) loamy sand; single grained; loose; few roots; strongly acid; abrupt smooth boundary.
IIC—28 to 60 inches; yellowish brown (10YR 5/4) sand; single grained; loose; few roots; strongly acid.

Depth to the IIC horizon is usually 18 to 30 inches. Reaction is strongly acid or very strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2. The C horizon has hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2, 3, or 4. Texture is loamy sand or sand.

Unadilla series

The Unadilla series consists of coarse-silty, mixed, mesic Typic Dystrochrepts. These soils are deep and well drained. They have a light olive brown and olive very fine sandy loam B horizon and a stratified, pale olive very fine sandy loam and olive silt C horizon. Unadilla soils formed in glaciolacustrine deposits.

Unadilla soils are on old lakebeds. Slope ranges from 3 to 15 percent.

Unadilla soils formed in the same kind of material as the associated moderately well drained Belgrade soils and poorly drained Raynham soils. Unadilla soils are in the same landscape as the Agawam and Hinckley soils, which are underlain by stratified sand and gravel.

Typical pedon of Unadilla very fine sandy loam, 3 to 8 percent slopes, in Forest Park, 1,000 feet north of the intersection of Laurel Street and Park Drive in the city of Springfield:

O1—1 inch to 0, litter of needles and twigs.
Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) very fine sandy loam; weak fine granular structure; very friable; very strongly acid; abrupt wavy boundary.
B21—10 to 17 inches; light olive brown (2.5Y 5/4) very fine sandy loam; weak fine and medium subangular blocky structure; very friable; strongly acid; clear smooth boundary.
B22—17 to 23 inches; olive (5Y 5/4) very fine sandy loam; weak fine and medium subangular blocky structure; friable; strongly acid; abrupt smooth boundary.
C—23 to 60 inches; stratified pale olive (5Y 6/4) very fine sand, olive (5Y 4/4) silt, and rare thin layers of dark olive gray (5Y 3/2) clay; weak medium and thick platy structure; friable; strongly acid.

The solum is 16 to 30 inches thick. Unless this soil has been limed, reaction is very strongly acid or strongly acid. Texture, to a depth of 40 inches, is silt loam or very fine sandy loam.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4. The B horizon has hue of 10YR to 5Y and value and chroma of 4 or 5. The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4.

Wareham series

The Wareham series consists of mixed, mesic Mollic Psammaquents. These soils are deep and poorly drained. They have a very dark gray loamy sand A horizon and a brown to dark brown and light olive brown loamy sand and sand C horizon that is underlain by a grayish brown sand Cg horizon. Wareham soils formed in sandy glacial outwash.

Wareham soils are in depressions and drainageways. Slope ranges from 0 to 3 percent.

Wareham soils formed in the same kind of material as the associated moderately well drained Deerfield soils and the associated excessively drained Windsor soils. Wareham soils are in the same landscape as the Hinckley, Merrimac, Agawam, and Sudbury soils, all of which have finer textures and are better drained.

Typical pedon of Wareham loamy sand in a cornfield 400 feet south of Buck Pond Road and 500 west of railroad in the city of Westfield:

Ap—0 to 10 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; friable; less than 5 percent gravel; many fine and medium corn roots; strongly acid; abrupt irregular boundary.
C1—10 to 13 inches; brown to dark brown (10YR 4/3) loamy sand; common fine prominent light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/6) mottles; single grained; loose; less than 5 percent gravel; strongly acid; clear smooth boundary.
C2—13 to 18 inches; light olive brown (2.5Y 5/4) sand; common fine prominent yellowish red (5YR 5/6) and brown (7.5YR 4/4) mottles; single grained; loose; 10 percent gravel; strongly acid; clear smooth boundary.
C3g—18 to 60 inches; grayish brown (2.5Y 5/2) sand; common fine prominent yellowish red (5YR 5/6) mottles; single grained; loose; 15 percent gravel; strongly acid.

Unless this soil has been limed, reaction ranges from very strongly acid to strongly acid.

The A horizon ranges from very dark gray (5YR 3/1) to very dark grayish brown (10YR 3/2). Texture is commonly loamy sand and loamy fine sand. The C horizon is strongly mottled, and the matrix has hue of 10YR, 2.5Y, or 5Y; value of 4 to 6; and chroma of 1 to 4. Common or many, distinct or prominent mottles are throughout the C horizon. Texture of the C horizon, to a depth of about 20 inches, is loamy sand, loamy fine sand, or sand. Below a depth of 20 inches are loamy sand, loamy coarse sand, sand, coarse sand, and strata of sand and gravel.

Wethersfield series

The Wethersfield series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and well drained. They have a reddish brown gravelly fine sandy loam B horizon over a reddish brown gravelly fine sandy loam fragipan. Wethersfield soils formed in glacial till derived mainly from reddish sandstone and shale of the Triassic age.

Wethersfield soils are on the tops and sides of drumloidal hills and ridges. Slope ranges from 3 to 25 percent.

Wethersfield soils formed in the same kind of material as the associated moderately well drained Ludlow soils and poorly drained Wilbraham soils. Wethersfield soils are in the same landscape as the yellower Paxton and Woodbridge soils.

Typical pedon of Wethersfield fine sandy loam, in an area of Wethersfield extremely stony fine sandy loam, 3 to 8 percent slopes, south of Wilbraham-Hampden town line, 100 yards east of Wilbraham Road and 100 yards north of the telephone cable line, in the town of Hampden:

Ap—0 to 8 inches, dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many grass roots; 5 percent fine gravel; very strongly acid; abrupt smooth boundary.
B21—8 to 14 inches, reddish brown (5YR 4/4) fine sandy loam; weak fine subangular blocky structure; friable; common roots; 10 percent fine gravel; strongly acid; clear smooth boundary.

B22—14 to 22 inches, reddish brown (5YR 4/3) gravelly fine sandy loam; weak fine subangular blocky structure; friable; few grass roots; 25 percent coarse fragments; strongly acid; abrupt smooth boundary.

B23—22 to 26 inches, reddish brown (5YR 4/3) gravelly fine sandy loam; weak fine subangular blocky structure; friable in hand, firm in place; 25 percent coarse fragments; strongly acid; clear smooth boundary.

Cx—26 to 60 inches; reddish brown (2.5YR 4/4) gravelly fine sandy loam; massive; very firm; 30 percent coarse fragments; medium acid.

The solum is about 20 to 32 inches thick. Coarse fragments generally make up 5 to 30 percent of this soil. Reaction is very strongly acid or strongly acid in the solum and is strongly acid or medium acid in the Cx horizon.

The Ap horizon has value and chroma of 3 or 4. The B horizon has hue of 5YR or 2.5YR, value of 3 or 4, and chroma of 3 to 6. Texture is fine sandy loam or loam. The C horizon has hue of 5YR or 2.5YR, value of 3 or 4 and chroma of 4. Texture is fine sandy loam or loam.

Whitman series

The Whitman series consists of coarse-loamy, mixed, mesic Typic Fragiaquepts. These soils are deep and very poorly drained. They have a mottled, gray fine sandy loam B horizon over a mottled, grayish brown fine sandy loam fragipan. Whitman soils formed in glacial till.

Whitman soils are in depressions and along drainageways on uplands. Slope ranges from 0 to 3 percent.

Whitman soils formed in the same kind of material as the associated moderately well drained Woodbridge soils and poorly drained Ridgebury soils.

Typical pedon of Whitman loam in an area of Whitman extremely stony loam, 0 to 3 percent slopes, in woodland, 1,200 feet south of Cherry Street Extension and 300 feet north of abandoned trolley car right-of way in the city of Holyoke:

O1—2 inches to 0; loose litter, mostly leaves and a few twigs.

A11—0 to 2 inches; black (N 2/0) mucky loam; moderate fine and medium granular structure; very friable, nonplastic, sticky; many fine and medium roots; 15 percent gravel; very strongly acid; abrupt wavy boundary.

A12—2 to 9 inches; black (10YR 2/1) loam; weak medium subangular blocky structure; very friable, nonsticky; many fine and medium roots; 15 percent gravel; very strongly acid; abrupt smooth boundary.

B1g—9 to 12 inches; gray (10YR 6/1) fine sandy loam; weak very coarse prismatic structure parting to weak fine subangular blocky; friable, nonsticky; few fine and medium roots; 15 percent gravel; very strongly acid; clear wavy boundary.

B21g—12 to 19 inches; gray (5Y 5/1) fine sandy loam; weak very coarse prismatic structure parting to weak fine subangular blocky; friable to firm; few fine and medium roots to depth of 14 inches; 15 percent gravel; very strongly acid; abrupt smooth boundary.

B22g—19 to 22 inches; gray (5Y 6/1) and olive brown (2.5Y 4/4) fine sandy loam; common medium prominent brownish yellow (10YR 6/6) mottles; weak very coarse prismatic structure parting to weak fine subangular blocky; friable to firm; 15 percent gravel; very strongly acid; abrupt smooth boundary.

Cxg—22 to 60 inches; grayish brown (2.5Y 5/2) fine sandy loam; common medium prominent gray (5Y 6/1) and brownish yellow (10YR 6/6) mottles in upper part; moderate thin and medium platy structure; firm in place, slightly firm in hand; 15 percent gravel; very strongly acid.

Depth to the fragipan is 12 to 24 inches. Coarse fragments make up 5 to 35 percent of the solum and C horizon. Unless this soil has been limed, reaction ranges from very strongly acid to medium acid throughout.

The A1 horizon has value of 2 and chroma of 0 to 2. The strongly gleyed B horizon is neutral in color or has hue of 10YR to 5Y, value of 4 to 6, and chroma of 0 to 1. Texture is fine sandy loam, sandy loam, or loam. The Cx horizon has neutral color, or has hue of 2.5Y or 5Y, value of 4, 5, or 6, and chroma of 0 to 2. Texture is fine sandy loam, sandy loam, or loam.

Wilbraham series

The Wilbraham series consists of coarse-loamy, mixed, mesic Aquic Fragiochrepts. These soils are deep and poorly drained. They have a mottled dark brown silt loam B horizon over a weak red gravelly silty clay loam and dusky red gravelly loam fragipan. Wilbraham soils formed in glacial till derived mainly from reddish sandstone and shale of the Triassic age. In this survey area Wilbraham soils are taxadjuncts because they contain clay films and have more clay in the fragipan than is defined for the Wilbraham series.

Wilbraham soils are in depressions and along drainageways on uplands. Slope ranges from 0 to 8 percent.

Wilbraham soils formed in the same kind of material as the associated well drained Wethersfield and Meckesville soils and moderately well drained Ludlow soils. Wilbraham soils are in the same landscape as the yellower Paxton and Woodbridge soils.

Typical pedon of Wilbraham silt loam in an area of Wilbraham extremely stony silt loam, 0 to 3 percent slopes, in woods adjacent to drainage ditch 200 feet east of Davis Road and 1/4 mile north of Vining Hill Road in the town of Southwick:

Ap—0 to 7 inches; dark brown (7.5YR 4/2) silt loam; few medium distinct dark reddish brown (5YR 3/3) mottles; weak fine and medium subangular blocky structure; very friable; 10 percent gravel; strongly acid; abrupt smooth boundary.

A2g—7 to 10 inches; reddish gray (5YR 5/2) silt loam; common medium prominent dark reddish brown (2.5YR 2/4), reddish brown (5YR 4/4), and grayish brown (10YR 5/2) mottles; weak to moderate thin and very thin platy structure; very friable; 10 percent gravel; strongly acid; clear smooth boundary.

B2g—10 to 16 inches; dark brown (7.5YR 4/4) silt loam; many medium prominent yellowish red (5YR 4/8) and grayish brown (10YR 5/2) mottles; weak to moderate thick platy and weak medium blocky structure; friable; 15 percent gravel; strongly acid; abrupt smooth boundary.

IIBx1—16 to 28 inches; weak red (10R 4/2) gravelly silty clay loam ped surfaces, weak red (10R 4/3) interiors; moderate thick and very thick platy structure; very firm and brittle; 30 percent fine gravel; continuous moderately thick clay films on peds and in pores and root channels; some black coatings; strongly acid; gradual smooth boundary.

IIBx2—28 to 60 inches; dusky red (10R 3/4) gravelly loam; moderate very thick platy structure; firm and brittle; 30 percent fine gravel; few clay films on plates; common fine dark reddish brown (5YR 2/2) coatings; medium acid.

Depth to the fragipan ranges from 16 to 25 inches. Gravel makes up 5 to 15 percent of the A and B2g horizons and 15 to 30 percent of the fragipan. Unless the soil has been limed, reaction is very strongly acid or strongly acid in the solum above the fragipan and strongly acid or medium acid in the fragipan.

The Ap horizon has hue of 10YR to 5YR, value of 2 to 4, and chroma of 1 to 3. The B2g horizon has hue of 7.5YR to 2.5YR, value of 3 or 4, and chroma of 3 to 6. Texture is loam or silt loam. The Bx horizon has hue of 10R to 5YR, value of 3 or 4, and chroma of 2 to 6. The upper part of the Bx horizon is silty clay loam; the lower part is silty clay loam to loam.

Windsor series

The Windsor series consists of mixed, mesic Typic Udipsamments. These soils are deep and excessively drained. They have a strong brown coarse sand and loamy sand B horizon and a yellowish brown sand C horizon. Windsor soils formed in sandy glacial outwash.

Windsor soils are on glacial outwash plains and terraces. Slope ranges from 0 to 35 percent.

Windsor soils formed in the same kind of material as the associated moderately well drained Deerfield soils and poorly drained Wareham soils. Windsor soils are on the same landscape as the Hinckley and Merrimac soils, which contain gravel.

Typical pedon of Windsor loamy sand, 0 to 3 percent slopes, in an idle area east of the south end of the main runway at Barnes Airport in the city of Westfield:

Ap1—0 to 2 inches; black (10YR 2/1) loamy sand; weak very fine granular structure; very friable; 5 percent fine gravel; very strongly acid; abrupt smooth boundary.

Ap2—2 to 7 inches; brown (10YR 4/3) loamy sand; weak fine and very fine granular structure; very friable; 5 percent gravel; strongly acid; abrupt smooth boundary.

B21—7 to 13 inches; strong brown (7.5YR 5/6) coarse sand; single grained; loose; 5 percent gravel; strongly acid; clear smooth boundary.

B22—13 to 23 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; 10 percent gravel; strongly acid; clear smooth boundary.

C—23 to 60 inches; yellowish brown (10YR 5/4) sand; single grained; loose; 5 percent gravel; strongly acid.

The solum is 20 to 32 inches thick. Windsor soils are about 0 to 10 percent gravel. Textures are dominantly loamy sand, loamy fine sand, or sand throughout. Medium and fine sand particles are predominant. Unless this soil has been limed, reaction is strongly acid or very strongly acid throughout.

The Ap and A1 horizons have hue of 10YR, value of 2 to 4, and chroma of 1 to 4. The B horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 or 6. The C horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 to 4.

Winooski series

The Winooski series consists of coarse-silty, mixed, nonacid, mesic Aquic Udifluvents. These soils are deep and moderately well drained. They have an olive silt loam C horizon over a mottled, olive, stratified silt and very fine sand IIC horizon. Winooski soils formed in silty alluvium.

Winooski soils are on flood plains. Slope ranges from 0 to 3 percent.

Winooski soils formed in the same kind of material as the associated well drained Hadley and poorly drained Limerick soils. Winooski soils are in the same landscape as the Podunk and Rumney soils, which contain more sand and less silt than Winooski soils.

Typical pedon of Winooski silt loam in a hayfield 100 feet northeast of the intersection of Meadow Road and West Road in the town of Longmeadow:

Ap—0 to 12 inches; very dark grayish brown (2.5Y 3/2) silt loam; weak fine and medium granular structure; very friable; slightly sticky, nonplastic; strongly acid; abrupt smooth boundary.

C1—12 to 21 inches; olive (5Y 4/3) silt loam; few medium prominent light gray (5Y 6/1) mottles in the lower part; massive; friable, slightly sticky, nonplastic; strongly acid; abrupt smooth boundary.

IIC2—21 to 66 inches; olive (5Y 5/4) stratified silt and very fine sand, overall texture is silt loam; common medium prominent light gray (5Y 6/1) and yellowish red (5YR 4/8) mottles; massive; loose to friable; medium acid.

Content of coarse fragments is 0 to 5 percent. The depth to grayish mottling ranges from about 14 to 20 inches. Texture, to a depth of 40 inches or more, is silt loam, very fine sandy loam, or loamy very fine sand. Where this soil is unlimed, reaction ranges from strongly acid to medium acid in the upper part and from medium acid to neutral in the lower part.

The Ap horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 or 3. The C horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 to 4.

Woodbridge series

The Woodbridge series consists of coarse-loamy, mixed, mesic Typic Fragiochrepts. These soils are deep and moderately well drained. They have a brown, dark yellowish brown, and mottled olive fine sandy loam and gravelly fine sandy loam B horizon over an olive gray and light olive gray fine sandy loam fragipan. Woodbridge soils formed in glacial till.

Woodbridge soils are on the tops and sides of drumlins and in the small valleys between drumlins. Slope ranges from 0 to 25 percent.

Woodbridge soils formed in the same kind of material as the associated well drained Paxton soils and poorly drained Ridgebury soils. Woodbridge soils are in the same landscape as Montauk and Scituate soils, which have a coarse textured substratum.

Typical pedon of Woodbridge fine sandy loam in an area of Woodbridge extremely stony fine sandy loam, 0 to 8 percent slopes, in a pasture 100 feet west of Hollow Road 7,300 feet south of junction of Hollow Road and Wilbraham Road in the town of Wilbraham:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine and medium granular structure; very friable; many fine and medium tree roots; 5 percent gravel; strongly acid; abrupt wavy boundary.

B21—5 to 12 inches; brown (7.5YR 4/4) fine sandy loam; weak fine and medium subangular blocky structure; very friable; many fine and medium tree roots in upper part, gradually decreasing in number in the lower part; 10 percent gravel; strongly acid; clear smooth boundary.

B22—12 to 18 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; weak fine and medium subangular blocky structure; friable; common fine tree roots in upper part, few in lower part; 20 percent gravel; strongly acid; clear smooth boundary.

B23—18 to 26 inches; olive (5Y 4/3) gravelly fine sandy loam; common fine distinct dark yellowish brown (10YR 4/4) and olive gray (5Y 5/2) mottles; fine and medium subangular blocky structure; friable; few fine tree roots; 25 percent gravel; strongly acid; abrupt smooth boundary.

Cx—26 to 60 inches; olive gray (5Y 5/2) and light olive gray (5Y 6/2) fine sandy loam; massive; very firm; 15 percent gravel; strongly acid.

The solum is 18 to 36 inches thick. Coarse fragments make up 5 to 30 percent of the soil. Unless this soil has been limed, reaction ranges from strongly acid to medium acid.

The Ap horizon has value of 3 or 4 and chroma of 2 or 3. The B horizon has hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 3 or 4. The B horizon is mottled below a depth of about 18 inches. Texture is fine sandy loam, sandy loam, or loam. The C horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. Texture ranges from sandy loam to loam in the C horizon.

References

(1) Allan, P. F., L. E. Garland, and R. Dugan. 1963. Rating northeastern soils for their suitability for wildlife habitat. 28th North Am. Wildl. Nat. Resour. Conf. Wildl. Manage. Inst., pp. 247-261, illus.

(2) American Association of State Highway [and Transportation] Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(3) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69. *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(4) United States Department of Agriculture. 1951. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. [Supplements replacing pp. 173-188 issued May 1962]

(5) United States Department of Agriculture. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210, 21 pp.

(6) United States Department of Agriculture. 1971. Massachusetts **water resources study - present land use. 62 pp.**

(7) United States Department of Agriculture. 1975. Soil Taxonomy: A basic system of soil classification for making and interpreting soil **surveys. U.S. Dep. Agric. Handb. 436. 754 pp. illus.**

Glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Area reclaim. An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as—

	Inches
Very low	Less than 2.4
Low	2.4 to 3.2
Moderate	3.2 to 5.2
High	More than 5.2

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

Deferred grazing. A delay in grazing until range plants have reached a specified stage of growth. Grazing is deferred in order to increase the vigor of forage and to allow desirable plants to produce seed. Contrasts with continuous grazing and rotation grazing.

Delta. An alluvial deposit, commonly triangular in shape, formed largely beneath water and deposited at the mouth of a river or stream.

Depth to rock. Bedrock at a depth that adversely affects the specified use.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Drumloid. An oval hill or ridge of glacial till. The shape of a drumloid is less regular and symmetrical than that of a drumlin.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action. Freezing and thawing of soil moisture. Frost action can damage structures and plant roots.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by melt water as it flows from glacial ice.

Glacial till (geology). Unassorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Large stones. Rock fragments 10 inches (25 centimeters) or more across. Large stones adversely affect the specified use.

Leaching. The removal of soluble material from soil or other material by percolating water.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Moraine (geology). An accumulation of earth, stones, and other debris deposited by a glacier. Types are terminal, lateral, medial, and ground.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three single variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Outwash, glacial. Stratified sand and gravel produced by glaciers and carried, sorted, and deposited by water that originated mainly from the melting of glacial ice. Glacial outwash is commonly in valleys on landforms known as valley trains, outwash terraces, eskers, kame terraces, kames, outwash fans, or deltas.

Outwash plain. A land form of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Poor outlets. Surface or subsurface drainage outlets difficult or expensive to install.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea. A stream terrace is frequently called a second bottom, in contrast with a flood plain, and is seldom subject to overflow. A marine terrace, generally wide, was deposited by the sea.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but the limited geographic soil area does not justify creation of a new series.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within 1 year; specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by melt water streams, in a glacial lake or other body of still water in front of a glacier.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Illustrations

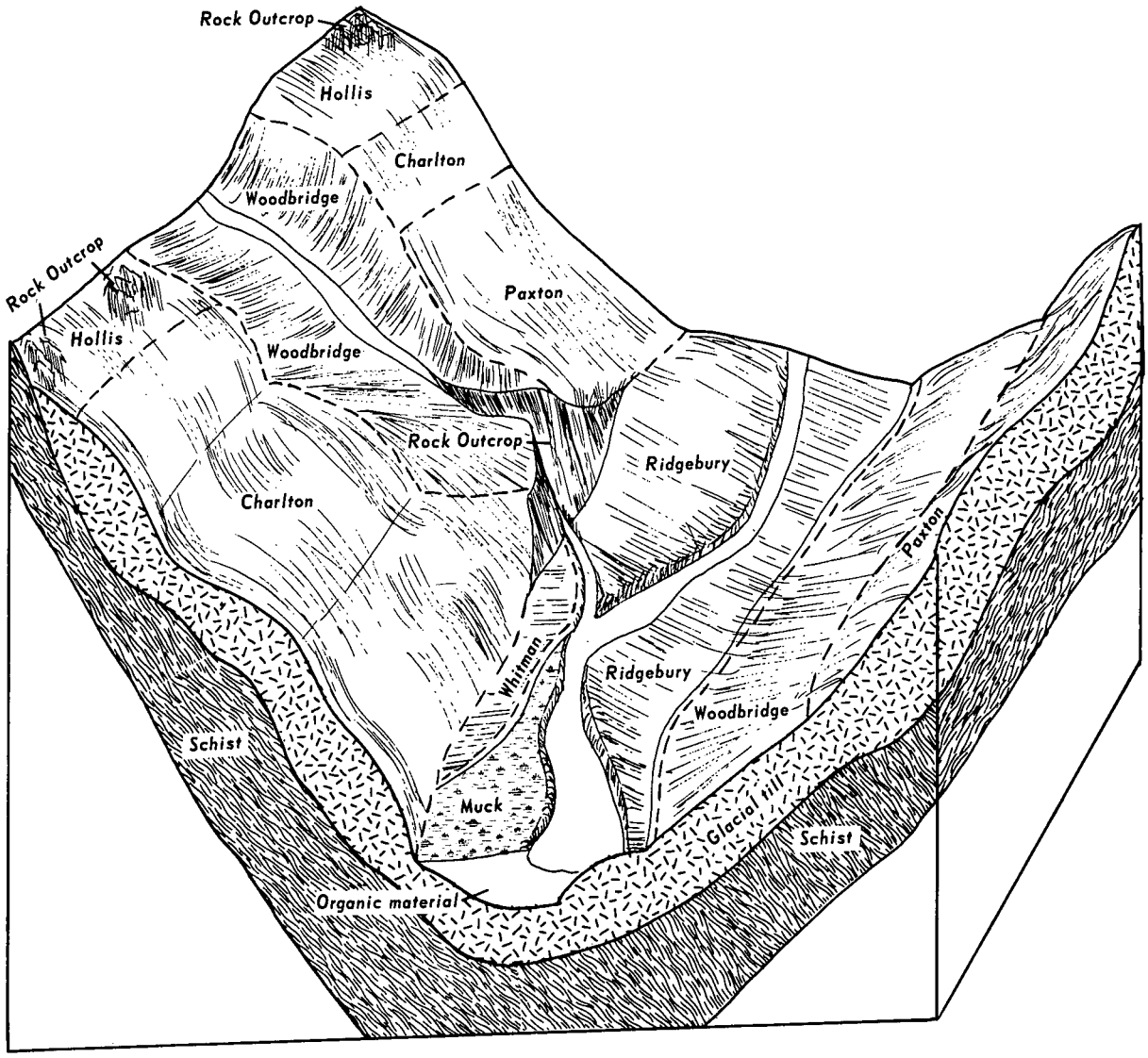


Figure 1.—Typical pattern of soils, relief, and underlying material in an area of the Charlton-Woodbridge-Paxton unit.

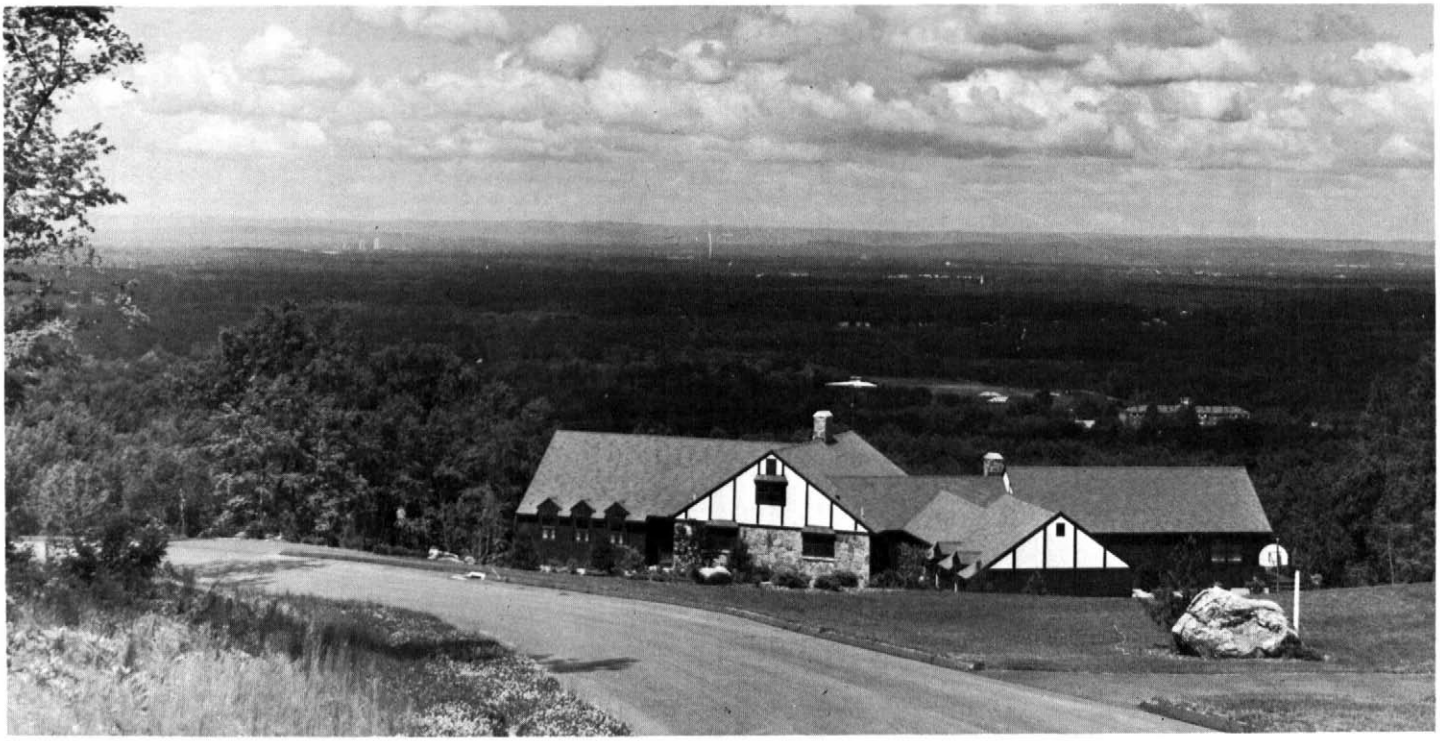


Figure 2.—Rural home in an area of the Charlton-Woodbridge-Paxton unit.

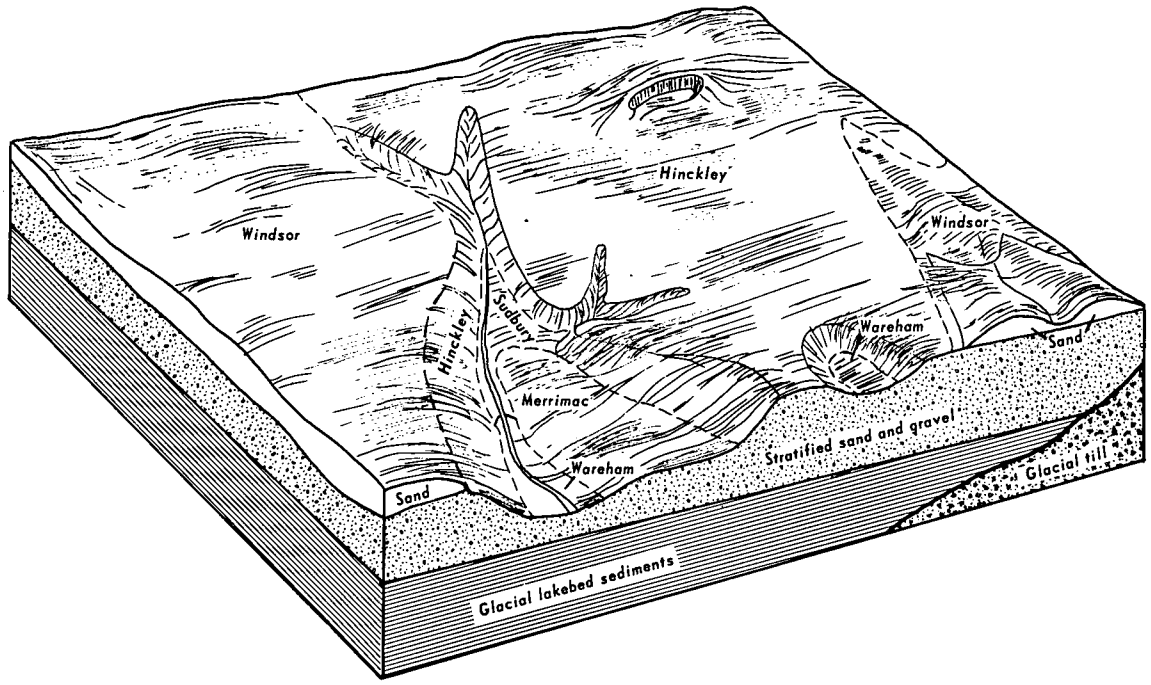


Figure 3.—Typical pattern of soils, relief, and underlying material in an area of the Hinckley-Windsor-Merrimac unit.

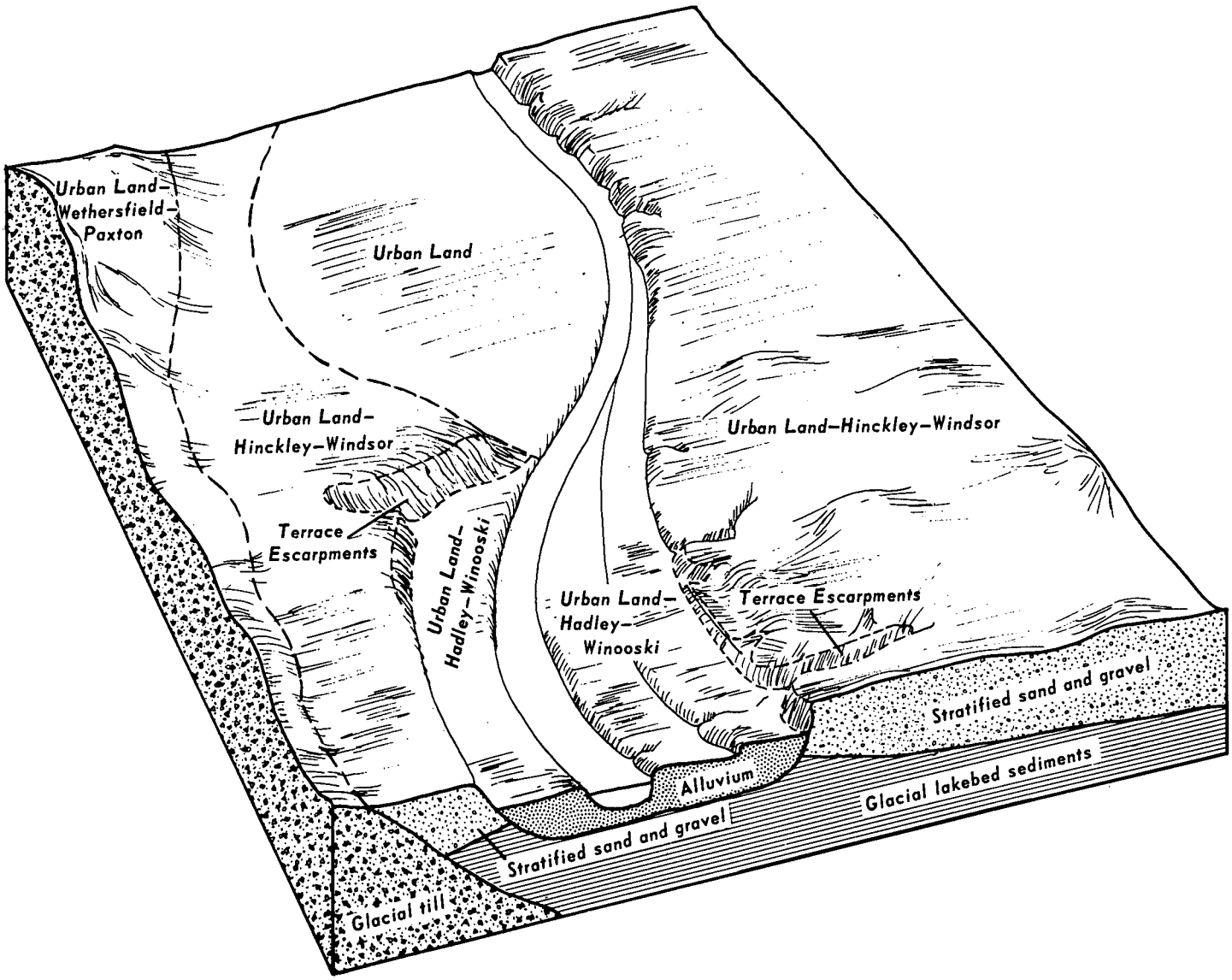


Figure 4.—Typical pattern of soils, relief, and underlying material in an area of the Urban land-Hadley-Winooski unit and the Urban land-Hinckley-Windsor unit.

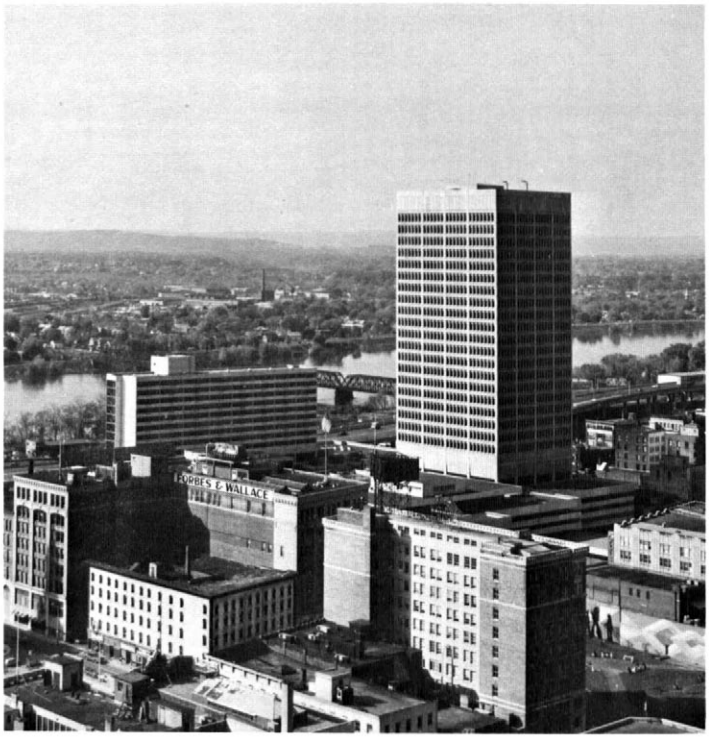


Figure 5.—Urban land-Hadley-Winooski unit in the center of Springfield.

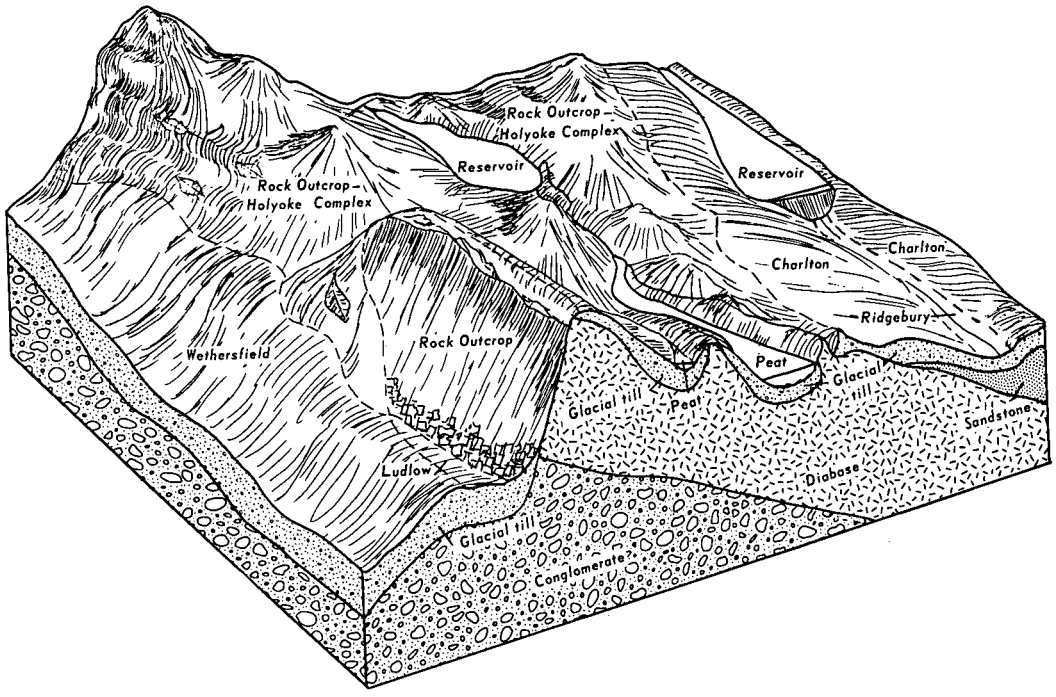


Figure 6.—Typical pattern of soils, relief, and underlying material in an area of the Rock outcrop-Holyoke unit.

Figure 7.—Pasture in an area of Sudbury fine sandy loam, 0 to 8 percent slopes.

Figure 8.—A white pine plantation in an area of Charlton fine sandy loam, 8 to 15 percent slopes.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

Month	Temperature[1]						Precipitation[1]				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[2]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	F	F	F	F	F	Units	In	In	In		In
January----	35.1	18.3	26.7	56	-7	10	2.67	1.41	3.69	6	10.0
February---	38.0	20.3	29.2	57	-6	17	3.03	2.08	3.90	6	10.5
March------	46.2	28.1	37.2	71	9	51	3.81	2.47	5.01	8	10.8
April------	60.2	38.1	49.1	84	22	284	4.10	2.51	5.52	8	.7
May--------	71.3	47.5	59.6	93	34	608	3.53	1.93	4.83	8	.0
June-------	79.9	57.0	68.5	96	41	855	4.08	2.43	5.55	8	.0
July-------	84.6	62.6	73.6	97	49	1,042	3.31	1.89	4.45	6	.0
August-----	82.9	60.7	71.8	95	46	986	3.94	1.67	5.78	7	.0
September--	75.6	52.9	64.3	93	33	729	3.78	2.08	5.16	6	.0
October----	65.5	43.3	54.4	84	25	446	3.29	1.51	4.74	5	.0
November---	51.2	34.4	42.8	71	16	126	4.25	2.81	5.55	7	1.3
December---	38.3	22.8	30.5	63	-1	34	4.42	2.43	6.03	8	10.2
Year-----	60.7	40.5	50.6	99	-10	5,188	44.21	37.03	51.07	83	43.5

[1]Recorded in the period 1951-73 at Springfield, Mass.

[2]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature[1]		
	24 F or lower	28 F or lower	32 F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 10	April 17	April 30
2 years in 10 later than--	April 5	April 13	April 26
5 years in 10 later than--	March 26	April 6	April 18
First freezing temperature in fall:			
1 year in 10 earlier than--	November 2	October 9	September 29
2 years in 10 earlier than--	November 7	October 15	October 4
5 years in 10 earlier than--	November 16	October 27	October 14

[1]Recorded in the period 1951-73 at Springfield, Mass.

TABLE 3.--GROWING SEASON LENGTH

Probability	Daily minimum temperature during growing season[1]		
	Higher than 24 F	Higher than 28 F	Higher than 32 F
	Days	Days	Days
9 years in 10	212	184	160
8 years in 10	220	190	166
5 years in 10	234	203	178
2 years in 10	249	215	190
1 year in 10	257	222	197

[1]Recorded in the period 1951-73 at Springfield, Mass.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AgA	Agawam fine sandy loam, 0 to 3 percent slopes	1,680	0.9
AgB	Agawam fine sandy loam, 3 to 8 percent slopes	873	0.5
AgC	Agawam fine sandy loam, 8 to 15 percent slopes	202	0.1
AmB	Amostown fine sandy loam, 0 to 6 percent slopes	436	0.2
BaB	Belgrade silt loam, 0 to 8 percent slopes	620	0.3
BgB	Broadbrook gravelly silt loam, 3 to 8 percent slopes	599	0.3
BgC	Broadbrook gravelly silt loam, 8 to 15 percent slopes	335	0.2
BhB	Broadbrook very stony silt loam, 3 to 8 percent slopes	604	0.3
BhC	Broadbrook very stony silt loam, 8 to 15 percent slopes	547	0.3
BhD	Broadbrook very stony silt loam, 15 to 25 percent slopes	533	0.3
BkB	Broadbrook extremely stony silt loam, 3 to 8 percent slopes	208	0.1
BkC	Broadbrook extremely stony silt loam, 8 to 15 percent slopes	335	0.2
BoB	Brookfield extremely stony fine sandy loam, 3 to 8 percent slopes	105	(1)
BoC	Brookfield extremely stony fine sandy loam, 8 to 15 percent slopes	246	0.1
BoD	Brookfield extremely stony fine sandy loam, 15 to 25 percent slopes	668	0.3
BrC	Brookfield-Rock outcrop-Brimfield complex, 3 to 15 percent slopes	106	(1)
BrD	Brookfield-Rock outcrop-Brimfield complex, 15 to 25 percent slopes	677	0.3
BuB	Buxton Variant silt loam, 0 to 8 percent slopes	270	0.1
CaA	Carver loamy coarse sand, 0 to 3 percent slopes	336	0.2
CaB	Carver loamy coarse sand, 3 to 8 percent slopes	141	0.1
CaC	Carver loamy coarse sand, 8 to 15 percent slopes	127	0.1
CkB	Charlton fine sandy loam, 3 to 8 percent slopes	409	0.2
CkC	Charlton fine sandy loam, 8 to 15 percent slopes	119	0.1
CmB	Charlton very stony fine sandy loam, 3 to 8 percent slopes	685	0.4
CmC	Charlton very stony fine sandy loam, 8 to 15 percent slopes	666	0.3
CmD	Charlton very stony fine sandy loam, 15 to 25 percent slopes	275	0.1
CnB	Charlton extremely stony fine sandy loam, 3 to 8 percent slopes	841	0.4
CnC	Charlton extremely stony fine sandy loam, 8 to 15 percent slopes	1,912	1.0
CnD	Charlton extremely stony fine sandy loam, 15 to 25 percent slopes	1,515	0.8
COE	Charlton and Narragansett extremely stony soils, steep	2,032	1.0
CpB	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	252	0.1
CpC	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	246	0.1
CrC	Charlton-Rock outcrop-Hollis complex, 3 to 15 percent slopes	1,383	0.7
CrD	Charlton-Rock outcrop-Hollis complex, 15 to 25 percent slopes	1,463	0.8
De	Deerfield loamy fine sand	1,346	0.7
EdB	Eldridge loamy sand, 0 to 6 percent slopes	328	0.2
EnA	Enfield silt loam, 0 to 3 percent slopes	595	0.3
EnB	Enfield silt loam, 3 to 8 percent slopes	539	0.3
EnC	Enfield silt loam, 8 to 15 percent slopes	808	0.4
Es	Enosburg loamy sand	485	0.3
GfB	Gloucester sandy loam, 3 to 8 percent slopes	152	0.1
GhB	Gloucester very stony sandy loam, 3 to 8 percent slopes	227	0.1
GhC	Gloucester very stony sandy loam, 8 to 15 percent slopes	114	(1)
GxB	Gloucester extremely stony sandy loam, 3 to 8 percent slopes	162	0.1
GxC	Gloucester extremely stony sandy loam, 8 to 15 percent slopes	301	0.2
GxD	Gloucester extremely stony sandy loam, 15 to 25 percent slopes	258	0.1
Ha	Hadley very fine sandy loam	750	0.4
HbA	Hadley very fine sandy loam, high bottom, 0 to 3 percent slopes	662	0.3
HbB	Hadley very fine sandy loam, high bottom, 3 to 6 percent slopes	363	0.2
HgA	Hinckley loamy sand, 0 to 3 percent slopes	6,941	3.6
HgB	Hinckley loamy sand, 3 to 8 percent slopes	7,572	3.9
HgC	Hinckley loamy sand, 8 to 15 percent slopes	4,318	2.2
HgD	Hinckley loamy sand, 15 to 25 percent slopes	3,034	1.6
HgE	Hinckley loamy sand, 25 to 35 percent slopes	1,273	0.7
HoB	Holyoke very fine sandy loam, 3 to 8 percent slopes	122	0.1
HoC	Holyoke very fine sandy loam, 8 to 15 percent slopes	135	0.1
HrC	Holyoke-Rock outcrop complex, 3 to 15 percent slopes	321	0.2
Lk	Limerick silt loam	1,062	0.5
LuB	Ludlow loam, 3 to 8 percent slopes	500	0.3
LwB	Ludlow very stony loam, 0 to 8 percent slopes	480	0.2
LxB	Ludlow extremely stony loam, 0 to 8 percent slopes	719	0.4
LxC	Ludlow extremely stony loam, 8 to 15 percent slopes	159	0.1
MaB	Meckesville loam, 3 to 8 percent slopes	286	0.1
MaC	Meckesville loam, 8 to 15 percent slopes	187	0.1
MaD	Meckesville loam, 15 to 25 percent slopes	156	0.1
MbB	Meckesville very stony loam, 3 to 8 percent slopes	193	0.1
MbC	Meckesville very stony loam, 8 to 15 percent slopes	164	0.1
MbD	Meckesville very stony loam, 15 to 25 percent slopes	136	0.1
McB	Meckesville extremely stony loam, 3 to 8 percent slopes	250	0.1
McC	Meckesville extremely stony loam, 8 to 15 percent slopes	194	0.1
McD	Meckesville extremely stony loam, 15 to 25 percent slopes	216	0.1
MeA	Merrimac sandy loam, 0 to 3 percent slopes	8,337	4.3

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
MeB	Merrimac sandy loam, 3 to 8 percent slopes	5,331	2.8
MeC	Merrimac sandy loam, 8 to 15 percent slopes	1,274	0.7
MeD	Merrimac sandy loam, 15 to 25 percent slopes	463	0.2
MmB	Montauk fine sandy loam, 3 to 8 percent slopes	285	0.1
MnB	Montauk extremely stony fine sandy loam, 3 to 8 percent slopes	670	0.3
MnC	Montauk extremely stony fine sandy loam, 8 to 15 percent slopes	377	0.2
Mu	Muck, deep	2,032	1.0
Mx	Muck, shallow	1,813	0.9
NaB	Narragansett very fine sandy loam, 3 to 8 percent slopes	244	0.1
NaC	Narragansett very fine sandy loam, 8 to 15 percent slopes	190	0.1
NbB	Narragansett very stony very fine sandy loam, 3 to 8 percent slopes	670	0.3
NbC	Narragansett very stony very fine sandy loam, 8 to 15 percent slopes	306	0.2
NcB	Narragansett extremely stony very fine sandy loam, 3 to 8 percent slopes	1,979	1.0
NcC	Narragansett extremely stony very fine sandy loam, 8 to 15 percent slopes	2,411	1.2
NcD	Narragansett extremely stony very fine sandy loam, 15 to 25 percent slopes	2,062	1.1
Ng	Ninigret fine sandy loam, 0 to 6 percent slopes	1,499	0.8
PaB	Paxton fine sandy loam, 3 to 8 percent slopes	1,263	0.7
PaC	Paxton fine sandy loam, 8 to 15 percent slopes	399	0.2
PbB	Paxton very stony fine sandy loam, 3 to 8 percent slopes	551	0.3
PbC	Paxton very stony fine sandy loam, 8 to 15 percent slopes	495	0.3
PbD	Paxton very stony fine sandy loam, 15 to 25 percent slopes	164	0.1
PcB	Paxton extremely stony fine sandy loam, 3 to 8 percent slopes	850	0.4
PcC	Paxton extremely stony fine sandy loam, 8 to 15 percent slopes	1,122	0.6
PcD	Paxton extremely stony fine sandy loam, 15 to 25 percent slopes	584	0.3
Pe	Peat	747	0.4
Po	Podunk fine sandy loam	921	0.5
PuA	Pollux fine sandy loam, 0 to 3 percent slopes	227	0.1
PuB	Pollux fine sandy loam 3 to 8 percent slopes	223	0.1
PuC	Pollux fine sandy loam, 8 to 15 percent slopes	149	0.1
Ra	Raynham silt loam	530	0.3
Rd	Ridgebury sandy loam	317	0.2
ReA	Ridgebury extremely stony sandy loam, 0 to 3 percent slopes	1,040	0.5
ReB	Ridgebury extremely stony sandy loam, 3 to 8 percent slopes	1,919	1.0
Rf	Rock outcrop	630	0.3
RHD	Rock outcrop-Holyoke complex, sloping	1,491	0.8
RHE	Rock outcrop-Holyoke complex, steep	8,694	4.5
Ru	Rumney fine sandy loam	722	0.4
Sa	Saco Variant silt loam	1,024	0.5
Sc	Scantic Variant silt loam	303	0.2
Se	Scarboro fine sandy loam	1,338	0.7
SgB	Scituate fine sandy loam, 3 to 8 percent slopes	108	(1)
ShB	Scituate extremely stony fine sandy loam, 3 to 8 percent slopes	374	0.2
SrB	Sudbury fine sandy loam, 0 to 8 percent slopes	2,896	1.5
Su	Suncook loamy fine sand, 0 to 5 percent slopes	1,031	0.5
Te	Terrace escarpments	1,370	0.7
UaB	Unadilla very fine sandy loam, 3 to 8 percent slopes	305	0.2
UaC	Unadilla very fine sandy loam, 8 to 15 percent slopes	315	0.2
Ub	Urban land	12,819	6.6
UH	Urban land-Hadley-Winooski association	3,799	2.0
UK	Urban land-Hinckley-Windsor association	20,144	10.4
UW	Urban land-Wethersfield-Paxton association	1,984	1.0
Wa	Wareham loamy sand	3,340	1.7
WeB	Wethersfield fine sandy loam, 3 to 8 percent slopes	2,431	1.3
WeC	Wethersfield fine sandy loam, 8 to 15 percent slopes	472	0.2
WfB	Wethersfield very stony fine sandy loam, 3 to 8 percent slopes	259	0.1
WfC	Wethersfield very stony fine sandy loam, 8 to 15 percent slopes	448	0.2
WfD	Wethersfield very stony fine sandy loam, 15 to 25 percent slopes	198	0.1
WgB	Wethersfield extremely stony fine sandy loam, 3 to 8 percent slopes	1,110	0.6
WgC	Wethersfield extremely stony fine sandy loam, 8 to 15 percent slopes	896	0.5
WgD	Wethersfield extremely stony fine sandy loam, 15 to 25 percent slopes	486	0.3
WhA	Whitman extremely stony loam, 0 to 3 percent slopes	547	0.3
WmA	Wilbraham extremely stony silt loam, 0 to 3 percent slopes	248	0.1
WmB	Wilbraham extremely stony silt loam, 3 to 8 percent slopes	611	0.3
WnA	Windsor loamy sand, 0 to 3 percent slopes	4,526	2.3
WnB	Windsor loamy sand, 3 to 8 percent slopes	6,010	3.1
WnC	Windsor loamy sand, 8 to 15 percent slopes	1,978	1.0
WnD	Windsor loamy sand, 15 to 25 percent slopes	1,194	0.6
WnE	Windsor loamy sand, 25 to 35 percent slopes	271	0.1
Wo	Winooski silt loam	1,078	0.6
WrA	Woodbridge fine sandy loam, 0 to 3 percent slopes	170	0.1
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes	720	0.4
WsB	Woodbridge very stony fine sandy loam, 0 to 8 percent slopes	850	0.4

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
WsC	Woodbridge very stony fine sandy loam, 8 to 15 percent slopes	388	0.2
WtB	Woodbridge extremely stony fine sandy loam, 0 to 8 percent slopes	2,497	1.3
WtC	Woodbridge extremely stony fine sandy loam, 8 to 15 percent slopes	1,698	0.9
WtD	Woodbridge extremely stony fine sandy loam, 15 to 25 percent slopes	684	0.4
	Gravel pit	1,819	0.9
	Quarry	106	(1)
	Water	935	0.5
	Total	193,715	100.0

[1]Less than 0.05 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[All yields were estimated for a high level of management in 1975. Absence of a yield figure indicates the crop is seldom grown or is not suited]

Soil name and map symbol	Corn silage	Corn, sweet	Tobacco (shade)	Alfalfa hay	Grass-legume hay	Pasture
	Ton	Doz	Lb	Ton	Ton	AUM[1]
Agawam:						
AgA	24	1,800	1,500	4.5	3.5	8.5
AgB	24	1,800	1,450	4.5	3.5	8.5
AgC	22	1,700	1,400	4.0	3.5	7.5
Amostown:						
AmB	22	1,700	1,300	4.0	---	7.6
Belgrade:						
BaB	24	1,700	---	4.5	---	8.5
Broadbrook:						
BgB	26	1,700	1,150	4.0	3.5	7.5
BgC	24	1,600	1,100	4.0	3.5	7.5
BhB, BhC, BhD	---	---	---	---	---	---
BkB, BkC	---	---	---	---	---	---
Brookfield:						
BoB, BoC, BoD	---	---	---	---	---	---
2BrC	---	---	---	---	---	---
2BrD	---	---	---	---	---	---
Buxton Variant:						
BuB	22	1,600	---	3.5	3.5	6.5
Carver:						
CaA, CaB	---	---	---	2.5	---	---
CaC	---	---	---	---	---	---
Charlton:						
CkB	24	1,700	---	5.0	4.5	9.5
CkC	22	1,600	---	5.0	4.0	9.5
CmB, CmC, CmD	---	---	---	---	---	---
CnB, CnC, CnD	---	---	---	---	---	---
2COE	---	---	---	---	---	---
2CpB	---	---	---	---	---	---
2CpC	---	---	---	---	---	---
2CrC	---	---	---	---	---	---
2CrD	---	---	---	---	---	---
Deerfield:						
De	16	1,700	1,400	3.5	3.0	6.5
Eldridge:						
EdB	16	1,700	---	4.0	3.5	8.0
Enfield:						
EnA	26	1,800	1,300	5.0	4.5	9.5
EnB	26	1,800	1,200	5.0	4.5	9.5
EnC	24	1,700	1,200	4.5	4.0	8.5
Enosburg:						
Es	18	1,600	---	---	3.0	6.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Corn, sweet	Tobacco (shade)	Alfalfa hay	Grass-legume hay	Pasture
	Ton	Doz	Lb	Ton	Ton	AUM[1]
Gloucester:						
GfB	16	1,600	---	4.0	---	7.5
GhB, GhC	---	---	---	---	---	---
GxB, GxC, GxD	---	---	---	---	---	---
Hadley:						
Ha, HbA, HbB	28	1,800	1,600	4.5	---	---
Hinckley:						
HgA, HgB	12	1,700	1,200	2.5	2.0	---
HgC	---	1,600	---	---	---	---
HgD	---	---	---	---	---	---
HgE	---	---	---	---	---	---
Holyoke:						
HoB	15	---	---	3.5	3.0	6.5
HoC	14	---	---	3.0	2.5	5.5
[2]HrC	---	---	---	---	---	---
Limerick:						
Lk	12	1,400	---	---	3.5	6.5
Ludlow:						
LuB	24	1,600	---	4.0	3.5	7.5
LwB	---	---	---	---	---	---
LxB, LxC	---	---	---	---	---	---
Meckesville:						
MaB	24	1,700	1,100	---	4.0	7.5
MaC	22	1,600	1,050	---	4.0	7.5
MaD	18	---	---	---	3.5	6.5
MbB, MbC, MbD, McB, McC, McD	---	---	---	---	---	---
Merrimac:						
MeA, MeB	22	1,800	1,200	4	3	---
MeC	16	1,700	---	4	3	---
MeD	12	---	---	3.5	2.5	---
Montauk:						
MmB	22	1,700	---	4.0	3.5	7.5
MnB, MnC	---	---	---	---	---	---
Muck, deep:						
Mu	---	---	---	---	---	---
Muck, shallow:						
Mx	---	---	---	---	---	---

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Corn, sweet	Tobacco (shade)	Alfalfa hay	Grass-legume hay	Pasture
	Ton	Doz	Lb	Ton	Ton	AUM[1]
Narragansett:						
NaB	26	1,700	1,200	4.5	4.0	8.5
NaC	24	1,700	1,150	4.5	4.0	8.5
NbB, NbC	---	---	---	---	---	---
NcB, NcC, NcD	---	---	---	---	---	---
Ninigret:						
Ng	22	1,700	1,300	4.0	3.5	7.7
Paxton:						
PaB	24	1,700	---	4.5	4.0	8.5
PaC	22	1,700	---	4.5	4.0	8.5
PbB, PbC, PbD	---	---	---	---	---	---
PcB, PcC, PcD	---	---	---	---	---	---
Peat:						
Pe	---	---	---	---	---	---
Podunk:						
Po	22	1,600	---	4.0	4.5	8.5
Pollux:						
PuA	24	1,800	1,500	4.5	---	---
PuB	24	1,800	1,450	4.5	---	---
PuC	22	1,600	---	4.5	---	---
Raynham:						
Ra	18	---	---	---	3.5	6.5
Ridgebury:						
Rd	16	---	---	---	3.5	6.5
ReA, ReB	---	---	---	---	---	---
Rock outcrop:						
Rf.	---	---	---	---	---	---
[2]RHD	---	---	---	---	---	---
[2]RHE	---	---	---	---	---	---
Rumney:						
Ru	12	1,400	---	---	4.0	6.5
Saco Variant:						
Sa	---	---	---	---	---	---
Scantic Variant:						
Sc	12	---	---	---	3.0	6.0
Scarboro:						
Se	---	---	---	---	---	---
Scituate:						
SgB	24	1,600	---	4.0	4.0	7.5
ShB	---	---	---	---	---	---
Sudbury:						
SrB	22	1,700	1,300	3.5	4.0	---

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Corn, sweet	Tobacco (shade)	Alfalfa hay	Grass-legume hay	Pasture
	Ton	Doz	Lb	Ton	Ton	AUM[1]
Suncook: Su	12	---	---	2.5	2.0	5.0
Terrace escarpments: Te	---	---	---	---	---	---
Unadilla: UaB	24	1,800	1,600	4.5	3.5	8.5
UaC	22	1,700	1,550	4.5	3.5	8.5
Urban land: Ub.	---	---	---	---	---	---
[2]UH: Urban land part.	---	---	---	---	---	---
Hadley part	28	1,800	1,600	4.5	---	---
Winooski part	26	1,600	1,500	4.5	4.0	8.5
[2]UK: Urban land part.	---	---	---	---	---	---
Hinckley part	12	1,700	1,200	2.5	2.0	---
Windsor part	14	1,700	1,500	3.0	2.5	5.5
[2]UW: Urban land part.						
Wethersfield part	20	1,700	1,150	4.0	3.5	7.5
Paxton part	22	1,700	---	4.5	4.0	8.5
Wareham: Wa	12	---	---	---	2.5	5.5
Wethersfield: WeB	22	1,700	1,150	4.5	4.0	8.5
WeC	20	1,600	1,000	4.0	3.5	7.5
WfB, WfC, WfD, WgB, WgC, WgD	---	---	---	---	---	---
Whitman: WhA	---	---	---	---	---	---
Wilbraham: WmA, WmB	---	---	---	---	---	---
Windsor: WnA, WnB	14	1,700	1,500	3.0	2.5	5.5
WnC	12	1,600	---	3.0	2.5	5.5
WnD	---	---	---	2.5	2.0	5.0
WnE	---	---	---	---	---	---
Winooski: Wo	26	1,600	1,500	4.5	4.0	8.5
Woodbridge: WrA	24	1,600	---	4.0	4.0	8.0
WrB	24	1,600	---	4.0	4.0	8.0
WsB, WsC	---	---	---	---	---	---

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn silage	Corn, sweet	Tobacco (shade)	Alfalfa hay	Grass-legume hay	Pasture
	Ton	Doz	Lb	Ton	Ton	AUM[1]
Woodbridge: WtB, WtC, WtD	---	---	---	---	---	---

[1]Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for a period of 30 days.

[2]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas excluded. Dashes mean no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	4,656	---	---	---
II	31,202	7,457	9,925	13,820
III	40,664	5,142	3,400	32,122
IV	12,184	1,768	3,643	6,773
V	1,338	---	1,338	---
VI	15,219	354	1,024	13,841
VII	43,425	4,412	4,592	34,421
VIII	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed in this table. Absence of an entry in a column means the information was not available]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Agawam: AgA, AgB, AgC	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	75 55 65	Eastern white pine, red pine, Norway spruce, eastern hemlock.
Amostown: AmB	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	75 70 65	Eastern white pine, white spruce, red pine.
Belgrade: BaB	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak	75 62	Eastern white pine, red pine, red spruce, eastern hemlock.
Broadbrook: BgB	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BgC	3r	Moderate	Slight	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BhB	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BhC	3r	Moderate	Slight	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BhD	3r	Severe	Moderate	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BkB	3x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
BkC	3x	Moderate	Moderate	Slight	Slight	Northern red oak Eastern white pine White ash	70 75 76	Eastern white pine, red pine, eastern hemlock, white spruce.
Brookfield: BoB, BoC, BoD	4x	Slight	Moderate	Slight	Slight	Northern red oak Sugar maple Eastern white pine	60 55 65	Eastern white pine, red pine, eastern hemlock, white spruce.
[1]BrC: Brookfield part	4x	Slight	Moderate	Slight	Slight	Northern red oak Sugar maple Eastern white pine	60 55 65	Eastern white pine, red pine, eastern hemlock, white spruce.
Rock outcrop part.								

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Brookfield:								
[1]BrC:								
Brimfield part--	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine--	45 55	Eastern white pine, red pine.
[1]BrD:								
Brookfield part-	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Sugar maple--------- Eastern white pine--	60 55 65	Eastern white pine, red pine, eastern hemlock, white spruce.
Rock outcrop part.								
Brimfield part--	5d	Slight	Moderate	Severe	Moderate	Northern red oak---- Eastern white pine--	45 55	Eastern white pine, red pine.
Buxton variant:								
BuB----------	4o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	65	Eastern white pine, white spruce, eastern hemlock.
Carver:								
CaA, CaB, CaC-----	5s	Slight	Slight	Severe	Slight	Eastern white pine-- Northern red oak----	53	Red pine, eastern white pine.
Charlton:								
CkB, CkC, CmB, CmC	4o	Slight	Slight	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
CmD----------	4r	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
CnB, CnC, CnD-----	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
[1]COE:								
Charlton part---	4x	Moderate	Severe	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
Narragansett part----------	4x	Severe	Moderate	Slight	Slight	Northern red oak---- Eastern white pine-- Sugar maple---------	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.
[1]CpB:								
Charlton part---	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Charlton:								
[1]CpB:								
Hollis part-----	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine-- Sugar maple----------	47 55 56	Eastern white pine, red pine.
Rock outcrop part.								
[1]CpC:								
Charlton part---	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
Hollis part-----	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine-- Sugar maple----------	47 55 56	Eastern white pine, red pine.
Rock outcrop part.								
[1]CrC:								
Charlton part---	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
Rock outcrop part.								
Hollis part-----	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine-- Sugar maple----------	47 55 56	Eastern white pine, red pine.
[1]CrD:								
Charlton part---	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine--	65 65	Eastern white pine, red pine, white spruce, eastern hemlock.
Rock outcrop part.								
Hollis part-----	5d	Slight	Moderate	Severe	Moderate	Northern red oak---- Eastern white pine-- Sugar maple----------	47 55 56	Eastern white pine, red pine.
Deerfield:								
De----------	4s	Slight	Slight	Moderate	Slight	Eastern white pine-- Northern red oak----	65 55	Eastern white pine, red pine, Norway spruce.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Eldridge:								
EdB	4o	Slight	Slight	Moderate	Slight	Eastern white pine Northern red oak	65 60	Eastern white pine, red pine, Norway spruce.
Enfield:								
EnA, EnB	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak	74 46	Eastern white pine, red pine.
EnC	3r	Moderate	Slight	Slight	Slight	Eastern white pine Northern red oak	74 46	Eastern white pine, red pine.
Enosburg:								
Es	4w	Slight	Severe	Severe	Severe	Eastern white pine	65	Eastern white pine, white spruce.
Gloucester:								
GfB, GhB, GhC	4s	Slight	Slight	Moderate	Slight	Northern red oak Eastern white pine Sugar maple	60 61 53	Eastern white pine, red pine, European larch, Norway spruce.
GxB, GxC	4x	Slight	Moderate	Moderate	Slight	Northern red oak Eastern white pine Sugar maple	60 61 53	Eastern white pine, red pine, European larch, Norway spruce.
GxD	4x	Slight	Moderate	Moderate	Slight	Northern red oak Eastern white pine Sugar maple	60 61 53	Eastern white pine, red pine, Norway spruce.
Hadley:								
Ha, HbA, HbB	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	70	Eastern white pine, red pine, eastern hemlock, Norway spruce.
Hinckley:								
HgA, HgB, HgC	5s	Slight	Slight	Severe	Slight	Northern red oak Eastern white pine	49 60	Eastern white pine, red pine.
HgD, HgE	5s	Slight	Moderate	Severe	Slight	Northern red oak Eastern white pine	49 60	Eastern white pine, red pine.
Holyoke:								
HoB, HoC	5d	Slight	Slight	Severe	Moderate	Northern red oak Eastern white pine	47 55	Eastern white pine, red pine.
[1]HrC:								
Holyoke part	5d	Slight	Slight	Severe	Moderate	Northern red oak Eastern white pine	47 55	Eastern white pine, red pine.
Rock outcrop part.								

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Limerick:								
Lk	4w	Slight	Severe	Severe	Severe	Eastern white pine Red maple	65	Eastern white pine, white spruce.
Ludlow:								
LuB, LwB	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine	70 75	Eastern white pine, red pine, white spruce.
LxB, LxC	3x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Red pine	70 75 75	Eastern white pine, red pine, white spruce.
Meckesville:								
MaB, MaC, MbB, MbC	2o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	80 75 63	Eastern white pine, European larch, Norway spruce.
MaD, MbD	2r	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	80 75 63	Eastern white pine, European larch, Norway spruce.
McB, McC, McD	2x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	80 75 63	Eastern white pine, European larch, Norway spruce.
Merrimac:								
MeA, MeB, MeC	4s	Slight	Slight	Moderate	Slight	Northern red oak Eastern white pine Sugar maple	51 64 58	Eastern white pine, red pine.
MeD	4s	Slight	Moderate	Moderate	Slight	Northern red oak Eastern white pine Sugar maple	51 64 58	Eastern white pine, red pine.
Montauk:								
MmB	3o	Slight	Slight	Slight	Slight	Sugar maple Northern red oak Eastern white pine	65 70 75	Norway spruce, white spruce.
MnB, MnC	3x	Slight	Moderate	Slight	Slight	Sugar maple Northern red oak Eastern white pine	65 70 75	Norway spruce, white spruce, red pine, eastern white pine.
Narragansett:								
NaB, NbB	4o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.
NaC, NbC	4r	Moderate	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.
NcB	4x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Narragansett:								
NcC	4x	Moderate	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.
NcD	4x	Severe	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	60 68 55	Eastern white pine, red pine, white spruce, eastern hemlock.
Ninigret:								
Ng	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak	75	Eastern white pine, white spruce, eastern hemlock.
Paxton:								
PaB, PaC, PbB, PbC	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	65 66 75	Red pine, eastern white pine, Norway spruce, white spruce.
PbD	3r	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	65 66 75	Red pine, eastern white pine, Norway spruce, white spruce.
PcB, PcC	3x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	65 66 75	Red pine, eastern white pine, Norway spruce, white spruce.
Podunk:								
Po	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak	75 65	Eastern white pine, red pine, white spruce.
Pollux:								
PuA, PuB, PuC	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	70 65 60	Eastern white pine, white spruce, red pine.
Raynham:								
Ra	4w	Slight	Severe	Severe	Severe	Eastern white pine Red maple	65 60	Eastern white pine, white spruce, northern white-cedar.
Ridgebury:								
Rd	4w	Slight	Severe	Severe	Severe	Eastern white pine Red maple	63 60	Eastern white pine, white spruce.
ReA, ReB	4x	Slight	Severe	Severe	Severe	Eastern white pine Red maple	63 60	Eastern white pine, white spruce.
Rock outcrop: [1]RHD: Rock outcrop part.								

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Rock outcrop:								
[1]RHD:								
Holyoke part----	5d	Slight	Slight	Severe	Moderate	Northern red oak---- Eastern white pine--	47 55	Eastern white pine, red pine.
[1]RHE:								
Rock outcrop part.								
Holyoke part----	5d	Moderate	Moderate	Severe	Moderate	Northern red oak---- Eastern white pine--	47 55	Eastern white pine, red pine.
Rumney:								
Ru----------	4w	Slight	Severe	Severe	Severe	Eastern white pine-- Red maple----------	59 65	Eastern white pine, white spruce, eastern hemlock.
Scantic Variant:								
Sc----------	5w	Slight	Severe	Severe	Severe	Eastern white pine-- Red maple----------	55 55	Generally unplantable.
Scarboro:								
Se----------	5w	Slight	Severe	Severe	Severe	Eastern white pine-- Red maple----------	55 55	Northern white-cedar.
Scituate:								
SgB----------	4o	Slight	Slight	Slight	Slight	Northern red oak---- Eastern white pine-- Sugar maple----------	61 65 55	Eastern white pine, red pine, white spruce, eastern hemlock.
ShB----------	4x	Slight	Moderate	Slight	Slight	Northern red oak---- Eastern white pine-- Sugar maple----------	61 65 55	Eastern white pine, red pine, white spruce, eastern hemlock.
Sudbury:								
SrB----------	4o	Slight	Slight	Slight	Slight	Eastern white pine-- Northern red oak----	60 45	Eastern white pine, red pine, eastern hemlock, white spruce, Norway spruce.
Suncook:								
Su----------	5s	Slight	Slight	Severe	Slight	Eastern white pine-- Northern red oak----	55 50	Eastern white pine, red pine.
Terrace escarpments:								
Te----------	5s	Moderate	Severe	Severe	Slight	Northern red oak---- Eastern white pine-- Sugar maple----------	50 65 55	Eastern white pine, red pine, white spruce.
Unadilla:								
UaB----------	3o	Slight	Slight	Slight	Slight	Sugar maple---------- Eastern white pine-- Northern red oak----	65 75 ---	Eastern white pine, Norway spruce, red pine, white spruce.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Unadilla:								
UaC	3r	Moderate	Slight	Slight	Slight	Sugar maple Eastern white pine Northern red oak	65 75 ---	Eastern white pine, Norway spruce, red pine, white spruce.
Urban land:								
Ub.								
Urban land:								
[1]UH:								
Urban land part.								
Hadley part	3o	Slight	Slight	Slight	Slight	Eastern white pine	70	Eastern white pine, red pine.
Winooski part	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	70 75 65	Eastern white pine, red pine.
[1]UK:								
Urban land part.								
Hinckley part	5s	Slight	Slight	Severe	Slight	Northern red oak Eastern white pine Sugar maple	49 60 57	Eastern white pine, red pine.
Windsor part	5s	Slight	Slight	Severe	Slight	Eastern white pine Northern red oak Sugar maple	57 52 55	Eastern white pine, red pine.
[1]UW:								
Urban land part.								
Wethersfield part	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	74 75 63	Eastern white pine, red pine.
Paxton part	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	65 66 75	Red pine, eastern white pine, Norway spruce, European larch.
Wareham:								
Wa	4w	Slight	Severe	Severe	Severe	Eastern white pine Northern red oak	65 60	Eastern white pine, white spruce.
Wethersfield:								
WeB, WeC	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	74 75 63	Eastern white pine, red pine.
WfB, WfC	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	74 75 63	Eastern white pine, red pine.
WfD	3r	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	74 75 63	Eastern white pine, red pine.
WgB, WgC, WgD	3x	Slight	Moderate	Slight	Slight	Northern red oak Eastern white pine Sugar maple	74 75 63	Eastern white pine, red pine.
Whitman:								
WhA	5x	Slight	Severe	Severe	Severe	Eastern white pine	56	Generally unplantable.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Important trees	Site index	
Wilbraham:								
WmA, WmB	4x	Slight	Severe	Severe	Severe	Northern red oak Eastern white pine	63 65	Eastern white pine, white spruce.
Windsor:								
WnA, WnB, WnC	5s	Slight	Slight	Severe	Slight	Eastern white pine Northern red oak	57 52	Eastern white pine, red pine.
WnD, WnE	5s	Slight	Moderate	Severe	Slight	Eastern white pine Northern red oak	57 52	Eastern white pine, red pine.
Winooski:								
Wo	3o	Slight	Slight	Slight	Slight	Northern red oak Eastern white pine Sugar maple	70 75 65	Eastern white pine, red pine.
Woodbridge:								
WrA, WrB	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	67 72 65	Eastern white pine, red pine,
WsB, WsC	3o	Slight	Slight	Slight	Slight	Eastern white pine Northern red oak Sugar maple	67 72 65	Eastern white pine, red pine.
WtB, WtC, WtD	3x	Moderate	Moderate	Slight	Slight	Eastern white pine Northern red oak Sugar maple	67 72 65	Eastern white pine, red pine.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 8.--BUILDING SITE DEVELOPMENT

["Frost action" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Agawam:					
AgA	Slight	Slight	Slight	Slight	Slight.
AgB	Slight	Slight	Slight	Moderate: slope.	Slight.
AgC	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Amostown:					
AmB	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: frost action, low strength.
Belgrade:					
BaB	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Moderate: frost action.
Broadbrook:					
BgB	Severe: wetness.	Moderate: frost action, wetness.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.
BgC	Severe: slope, wetness.	Moderate: slope, wetness, frost action.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
BhB	Severe: wetness.	Moderate: wetness, large stones, frost action.	Severe: large stones, wetness.	Moderate: slope, wetness, large stones, frost action.	Moderate: frost action.
BhC	Severe: wetness.	Moderate: slope, wetness, large stones, frost action.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
BhD	Severe: slope, wetness.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Severe: slope.
BkB	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: large stones.	Moderate: frost action, large stones.
BkC	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: slope, large stones.	Moderate: slope, large stones, frost action.
Brookfield:					
BoB	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Moderate: large stones.
BoC	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones, slope.	Moderate: large stones.
BoD	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Brookfield:					
[1]BrC:					
Brookfield part	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones, slope.	Moderate: large stones.
Rock outcrop part.					
Brimfield part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
[1]BrD:					
Brookfield part	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, slope.	Severe: slope.
Rock outcrop part.					
Brimfield part	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Buxton Variant:					
BuB	Severe: wetness, too clayey.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: low strength, frost action.
Carver:					
CaA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
CaB	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
CaC	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Charlton:					
CkB	Slight	Slight	Slight	Moderate: slope.	Slight.
CkC	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
CmB	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones, slope.	Slight.
CmC	Moderate: large stones, slope.	Moderate: large stones, slope.	Moderate: large stones, slope.	Severe: slope.	Moderate: slope.
CmD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
CnB	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Moderate: large stones.
CnC	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones, slope.
CnD	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Charlton:					
[1]CoE:					
Charlton part	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
Narragansett part	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
[1]CpB:					
Charlton part	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Moderate: large stones.
Hollis part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop part.					
[1]CpC:					
Charlton part	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones, slope.
[1]CpC:					
Hollis part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
Rock outcrop part.					
[1]CrC:					
Charlton part	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones, slope.
Rock outcrop part.					
Hollis part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
[1]CrD:					
Charlton part	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
Rock outcrop part.					
Hollis part	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Deerfield:					
De	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Slight.
Eldridge:					
EdB	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: low strength, frost action.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Enfield:					
EnA	Severe: small stones, cutbanks cave.	Moderate: frost action.	Slight	Moderate: frost action.	Moderate: frost action.
EnB	Severe: small stones, cutbanks cave.	Moderate: frost action.	Slight	Moderate: slope, frost action.	Moderate: frost action.
EnC	Severe: small stones, cutbanks cave.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.
Enosburg:					
Es	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Gloucester:					
GfB	Slight	Slight	Slight	Moderate: slope.	Slight.
GhB	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Slight.
GhC	Moderate: large stones.	Moderate: large stones.	Moderate: large stones.	Severe: slope.	Moderate: slope.
GxB	Severe: large stones.	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Moderate: large stones.
GxC	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: large stones.
GxD	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
Hadley:					
Ha	Severe: floods.	Severe: floods, frost action.	Severe: floods.	Severe: floods, frost action.	Severe: floods, frost action.
HbA, HbB	Severe: floods.	Severe: floods, frost action.	Severe: floods.	Severe: floods, frost action.	Severe: frost action, floods.
Hinckley:					
HgA	Severe: small stones, cutbanks cave.	Slight	Slight	Slight	Slight.
HgB	Severe: small stones, cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
HgC	Severe: small stones, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
HgD, HgE	Severe: slope, small stones, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Holyoke:					
HoB	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
HoC	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
[1]HrC:					
Holyoke part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
Rock outcrop part.					
Limerick:					
Lk	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Ludlow:					
LuB, LwB	Severe: wetness.	Severe: frost action.	Severe: wetness, frost action.	Severe: frost action.	Severe: frost action.
LxB	Severe: wetness, large stones.	Severe: frost action, large stones.	Severe: wetness, large stones, frost action.	Severe: frost action, large stones.	Severe: frost action.
LxC	Severe: wetness, large stones.	Severe: frost action, large stones.	Severe: wetness, frost action, large stones.	Severe: slope, frost action, large stones.	Severe: frost action.
Meckesville:					
MaB	Moderate: wetness.	Moderate: wetness, frost action.	Moderate: wetness.	Moderate: slope, frost action, wetness.	Moderate: frost action.
MaC	Moderate: slope, wetness.	Moderate: slope, frost action, wetness.	Moderate: slope, wetness.	Severe: slope.	Moderate: slope, frost action.
MaD, MbD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MbB	Moderate: wetness, large stones.	Moderate: wetness, frost action, large stones.	Moderate: wetness, large stones.	Moderate: slope, frost action, wetness, large stones.	Moderate: frost action.
MbC	Moderate: slope, wetness, large stones.	Moderate: slope, wetness, large stones.	Moderate: slope, wetness, large stones.	Severe: slope.	Moderate: slope, frost action.
McB	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Moderate: large stones, frost action.
McC	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: slope, large stones, frost action.
McD	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Merrimac:					
MeA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
MeB	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
MeC	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
MeD	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Montauk:					
MmB	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.
MnB	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: large stones.	Moderate: large stones, frost action.
MnC	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: slope, large stones.	Moderate: slope, frost action.
Muck,deep:					
Mu	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.
Muck,shallow:					
Mx	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.
Narragansett:					
NaB	Slight	Moderate: frost action.	Slight	Moderate: slope, frost action.	Moderate: frost action.
NaC	Moderate: slope.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.
NbB	Moderate: large stones.	Moderate: large stones, frost action.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: frost action.
NbC	Moderate: slope, large stones.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, frost action.
NcB	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.	Moderate: frost action, large stones.
NcC	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: slope, large stones.	Moderate: slope, large stones, frost action.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
NcD	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.
Ninigret:					
Ng	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, corrosive.	Moderate: frost action.
Paxton:					
PaB	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, frost action, wetness.	Moderate: frost action.
PaC	Severe: wetness.	Moderate: slope, frost action, wetness.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
PbB	Severe: wetness.	Moderate: wetness, frost action, large stones.	Severe: wetness.	Moderate: slope, frost action, wetness, large stones.	Moderate: frost action.
PbC	Severe: wetness.	Moderate: wetness, frost action, slope, large stones.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
PbD	Severe: slope, wetness.	Severe: slope.	Severe: slope, wetness.	Severe: slope.	Severe: slope.
PcB	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: large stones.	Moderate: large stones, frost action.
PcC	Severe: wetness, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: slope, large stones.	Moderate: slope, frost action, large stones.
PcD	Severe: slope, wetness, large stones.	Severe: slope, large stones.	Severe: slope, wetness, large stones.	Severe: slope, large stones.	Severe: slope.
Peat:					
Pe	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.
Podunk:					
Po	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
Pollux:					
PuA	Slight	Slight	Slight	Slight	Slight.
PuB	Slight	Slight	Slight	Moderate: slope.	Slight.
PuC	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Raynham: Ra	Severe: wetness.	Severe: frost action, wetness.	Severe: wetness.	Severe: frost action, wetness.	Severe: frost action, wetness.
Ridgebury: Rd	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action.
ReA, ReB	Severe: wetness, large stones.	Severe: wetness, frost action, large stones.	Severe: wetness, large stones.	Severe: wetness, frost action, large stones.	Severe: wetness, large stones.
Rock outcrop: Rf.					
[1]RHD: Rock outcrop part.					
Holyoke part	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
[1]RHE: Rock outcrop part.					
Holyoke part	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Rumney: Ru	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, frost action, wetness.	Severe: floods, frost action, wetness.	Severe: floods, wetness, frost action.
Saco Variant: Sa	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness.	Severe: floods, wetness, frost action.	Severe: floods, wetness, frost action.
Scantic Variant: Sc	Severe: wetness, too clayey.	Severe: wetness, frost action.	Severe: wetness.	Severe: wetness, frost action.	Severe: wetness, frost action, low strength.
Scarboro: Se	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Scituate: SgB	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: frost action.
ShB	Severe: wetness, large stones.	Severe: wetness, large stones,	Severe: wetness, large stones.	Severe: wetness, large stones.	Moderate: frost action, large stones.
Sudbury: SrB	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: frost action.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Suncook:					
Su	Severe: floods, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Terrace escarpments:					
Te	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Unadilla:					
UaB	Slight	Moderate: frost action.	Slight	Moderate: slope, frost action.	Moderate: low strength, frost action.
UaC	Moderate: slope.	Moderate: slope, frost action.	Moderate: slope.	Severe: slope.	Moderate: slope, low strength, frost action.
Urban land:					
Ub.					
[1]UH:					
Urban land part.					
Hadley part	Severe: floods.	Severe: floods, frost action.	Severe: floods, frost action.	Severe: floods, frost action.	Severe: frost action, floods.
Winooski part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, frost action.
[1]UK:					
Urban land part.					
Hinckley part	Severe: small stones, cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
Windsor part	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
[1]UW:					
Urban land part.					
Wethersfield part	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: wetness, slope, frost action.	Moderate: frost action.
Paxton part	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, wetness, frost action.	Moderate: frost action.
Wareham:					
Wa	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Wethersfield:					
WeB	Severe: wetness.	Moderate: wetness, frost action.	Severe: wetness.	Moderate: slope, frost action, wetness.	Moderate: frost action.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Wethersfield:					
WeC	Severe: wetness.	Moderate: slope, frost action.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
WfB	Severe: wetness.	Moderate: large stones, wetness, frost action.	Severe: wetness.	Moderate: slope, frost action, wetness, large stones.	Moderate: frost action.
WfC	Severe: wetness.	Moderate: slope, frost action, wetness, large stones.	Severe: wetness.	Severe: slope.	Moderate: slope, frost action.
WfD	Severe: slope, wetness.	Severe: slope.	Severe: slope, wetness.	Severe: slope.	Severe: slope.
WgB	Severe: large stones, wetness.	Severe: large stones.	Severe: large stones, wetness.	Severe: large stones.	Moderate: frost action, large stones.
WgC	Severe: large stones, wetness.	Severe: large stones.	Severe: large stones, wetness.	Severe: slope, large stones.	Moderate: slope, frost action, large stones.
WgD	Severe: slope, large stones, wetness.	Severe: slope, large stones.	Severe: slope, large stones, wetness.	Severe: slope, large stones.	Severe: slope.
Whitman:					
WhA	Severe: large stones, wetness.	Severe: wetness, large stones.	Severe: wetness, large stones.	Severe: wetness, large stones.	Severe: wetness.
Wilbraham:					
WmA, WmB	Severe: large stones, wetness.	Severe: wetness, large stones, frost action.	Severe: wetness, large stones.	Severe: large stones, wetness, frost action.	Severe: wetness, frost action.
Windsor:					
WnA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
WnB	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight.
WnC	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
WnD, WnE	Severe: slope, cutbanks cave.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Winooski:					
Wo	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, frost action.
Woodbridge:					
WrA, WrB, WsB	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: frost action.	Severe: frost action.
WsC	Severe: wetness.	Severe: frost action.	Severe: wetness.	Severe: slope.	Severe: frost action.

See footnote at end of table.

TABLE 8.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Woodbridge:					
WtB	Severe: wetness, large stones.	Severe: large stones, frost action.	Severe: large stones, wetness.	Severe: large stones, frost action.	Severe: frost action.
WtC	Severe: wetness, large stones.	Severe: large stones, frost action.	Severe: large stones, wetness.	Severe: slope, large stones.	Severe: frost action.
WtD	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 9.--SANITARY FACILITIES

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Agawam:					
AgA, AgB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer.
AgC	Moderate[1]: slope.	Severe: slope.	Severe: seepage.	Severe: seepage.	Fair: thin layer.
Amostown:					
AmB	Severe: wetness, percs slowly.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Good.
Belgrade:					
BaB	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Broadbrook:					
BgB	Severe: percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: small stones.
BgC	Severe: percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: slope, wetness.	Fair: slope, small stones.
BhB	Severe: percs slowly.	Moderate: slope, large stones.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: large stones.
BhC	Severe: percs slowly.	Severe: slope.	Moderate: wetness, large stones.	Moderate: slope, wetness.	Fair: slope, large stones.
BhD	Severe: slope, percs slowly.	Severe: slope.	Moderate: slope, wetness, large stones.	Severe: slope.	Poor: slope.
BkB	Severe: percs slowly, large stones.	Severe: large stones.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
BkC	Severe: percs slowly, large stones.	Severe: slope, large stones.	Severe: large stones.	Moderate: slope, wetness.	Poor: large stones.
Brookfield:					
BoB	Severe: large stones.	Severe: seepage.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
BoC	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
BoD	Severe: large stones, slope.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage, slope.	Poor: large stones, slope.
[2]BrC:					
Brookfield part	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Brookfield:					
[2]BrC:					
Rock outcrop part.					
Brimfield part---	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
[2]BrD:					
Brookfield part--	Severe: large stones, slope.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage, slope.	Poor: large stones, slope.
Rock outcrop part.					
Brimfield part---	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Buxton Variant:					
BuB----------	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: thin layer, too clayey.
Carver:					
CaA, CaB----------	Slight[1]----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: thin layer, too sandy, area reclaim.
CaC----------	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Poor: thin layer, too sandy, area reclaim.
Charlton:					
CkB----------	Slight----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
CkC----------	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
CmB----------	Moderate: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: large stones.
CmC----------	Moderate: slope, large stones.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: large stones, slope.
CmD----------	Severe: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage, slope.	Poor: slope.
CnB----------	Severe: large stones.	Severe: seepage.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
CnC----------	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
CnD----------	Severe: slope, large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage, slope.	Poor: large stones, slope.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2COE:					
Charlton part	Severe: slope, large stones.	Severe: seepage, slope.	Severe: large stones, seepage, slope.	Severe: seepage, slope.	Poor: large stones, slope.
Narragansett part	Severe: slope, large stones.	Severe: slope, seepage.	Severe: seepage, large stones, slope.	Severe: slope, seepage.	Poor: slope, large stones.
2CpB:					
Charlton part	Severe: large stones.	Severe: seepage.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
Hollis part	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Rock outcrop part.					
2CpC:					
Charlton part	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
Hollis part	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Rock outcrop part.					
2CrC:					
Charlton part	Severe: large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage.	Poor: large stones.
Rock outcrop part.					
Hollis part	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
2CrD:					
Charlton part	Severe: slope, large stones.	Severe: seepage, slope.	Severe: large stones, seepage.	Severe: seepage, slope.	Poor: slope.
Rock outcrop part.					
Hollis part	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Deerfield:					
De	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Fair: area reclaim, too sandy.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Eldridge:					
EdB	Severe: percs slowly, wetness.	Severe: wetness, seepage.	Moderate: wetness.	Severe: wetness.	Fair: too sandy.
Enfield:					
EnA, EnB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer, area reclaim.
EnC	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, thin layer, area reclaim.
Enosburg:					
Es	Severe: percs slowly, wetness.	Severe: wetness, seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Gloucester:					
GfB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: small stones, area reclaim.
GhB	Moderate[1]: large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage.	Poor: area reclaim, small stones.
GhC	Moderate[1]: large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage, slope.	Poor: area reclaim, slope, small stones.
GxB	Severe: large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage.	Poor: area reclaim, small stones, large stones.
GxC	Severe: large stones.	Severe: seepage, slope.	Severe: seepage, large stones.	Severe: seepage, slope.	Poor: slope, small stones, large stones.
GxD	Severe: large stones, slope.	Severe: seepage, slope.	Severe: large stones, slope, seepage.	Severe: seepage, slope.	Poor: slope, small stones, large stones.
Hadley:					
Ha, HbA, HbB	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Good.
Hinckley:					
HgA, HgB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: area reclaim, too sandy.
HgC	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Poor: area reclaim, too sandy.
HgD	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: area reclaim, slope, too sandy.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Hinckley:					
HgE	Severe: slope.	Severe: slope, seepage.	Severe: slope, seepage.	Severe: slope, seepage.	Poor: area reclaim, slope, too sandy.
Holyoke:					
HoB	Severe: depth to rock.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
HoC	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
2HrC:					
Holyoke part	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
Rock outcrop part.					
Limerick:					
Lk	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: floods, wetness.
Ludlow:					
LuB	Severe: percs slowly.	Moderate: small stones.	Severe: wetness.	Severe: wetness.	Fair: small stones.
LwB	Severe: percs slowly.	Moderate: large stones.	Severe: wetness.	Severe: wetness.	Fair: large stones.
LxB	Severe: large stones, percs slowly.	Severe: large stones.	Severe: large stones, wetness.	Severe: wetness.	Poor: large stones.
LxC	Severe: large stones, percs slowly.	Severe: large stones, slope.	Severe: large stones, wetness.	Severe: wetness.	Poor: large stones.
Meckesville:					
MaB	Severe: percs slowly.	Moderate: slope, small stones.	Moderate: wetness.	Moderate: wetness.	Fair: small stones.
MaC	Severe: percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, slope.	Fair: slope, small stones.
MaD	Severe: slope, percs slowly.	Severe: slope.	Moderate: wetness, slope.	Severe: slope, wetness.	Poor: slope.
MbB	Severe: percs slowly.	Moderate: slope, large stones.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: large stones.
MbC	Severe: percs slowly.	Severe: slope.	Moderate: wetness, large stones.	Moderate: wetness, slope.	Fair: slope, large stones.
MbD	Severe: slope, percs slowly.	Severe: slope.	Severe: wetness.	Severe: slope, wetness.	Poor: slope.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Meckesville:					
MeB	Severe: percs slowly, large stones.	Severe: large stones.	Severe: wetness, large stones.	Moderate: wetness.	Poor: large stones.
MeC	Severe: percs slowly, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: wetness.	Poor: large stones.
MeD	Severe: slope, percs slowly.	Severe: large stones.	Severe: wetness, large stones.	Severe: slope, wetness.	Poor: slope, large stones.
Merrimac:					
MeA, MeB	Slight[1]	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, area reclaim.
MeC	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: thin layer, area reclaim.
MeD	Severe: slope.	Severe: slope, seepage.	Severe: seepage, too sandy.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Montauk:					
MmB	Severe: percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Good.
MnB	Severe: percs slowly, large stones.	Moderate: slope.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
MnC	Severe: percs slowly, large stones.	Severe: slope.	Severe: large stones.	Moderate: slope, wetness.	Poor: large stones.
Muck,deep:					
Mu	Severe: wetness, floods.	Severe: wetness, excess humus, seepage.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Poor: excess humus, wetness.
Muck,shallow:					
Mx	Severe: wetness, floods.	Severe: wetness, excess humus, seepage.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Poor: wetness, excess humus.
Narragansett:					
NaB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: thin layer.
NaC	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, thin layer.
NbB	Moderate[1]: large stones.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: large stones.
NbC	Moderate[1]: slope, large stones.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Fair: slope, large stones.
NcB	Severe: large stones.	Severe: seepage.	Severe: seepage, large stones.	Severe: seepage.	Poor: large stones.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Narragansett:					
NcC	Severe: large stones.	Severe: slope, seepage.	Severe: seepage, large stones.	Severe: seepage.	Poor: large stones.
NcD	Severe: slope, large stones.	Severe: slope, seepage.	Severe: seepage, large stones.	Severe: slope, seepage.	Poor: slope, large stones.
Ninigret:					
Ng	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Fair: thin layer, area reclaim.
Paxton:					
PaB	Severe: percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: small stones.
PaC	Severe: percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, slope.	Fair: small stones.
PbB	Severe: percs slowly.	Moderate: slope, large stones.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: thin layer, large stones.
PbC	Severe: percs slowly.	Severe: slope.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: slope, thin layer, large stones.
PbD	Severe: percs slowly, slope.	Severe: slope.	Moderate: wetness, slope, large stones.	Severe: slope.	Poor: slope.
PcB	Severe: percs slowly.	Severe: large stones.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
PcC	Severe: percs slowly.	Severe: slope, large stones.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
PcD	Severe: percs slowly, slope.	Severe: slope, large stones.	Severe: large stones.	Severe: slope.	Poor: slope, large stones.
Peat:					
Pe	Severe: wetness, floods.	Severe: wetness, excess humus, seepage.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, seepage.	Poor: wetness, excess humus.
Podunk:					
Po	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Good.
Pollux:					
PuA	Severe: percs slowly.	Slight	Slight	Slight	Good.
PuB	Severe: percs slowly.	Moderate: slope.	Slight	Slight	Good.
PuC	Severe: percs slowly.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Raynham:					
Ra	Severe: percs slowly, wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ridgebury:					
Rd	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
ReA, ReB	Severe: wetness, percs slowly, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: wetness.	Poor: wetness, large stones.
Rock outcrop:					
Rf.					
[2]RHD:					
Rock outcrop part.					
Holyoke part	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: thin layer, area reclaim.
[2]RHE:					
Rock outcrop part.					
Holyoke part	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
Rumney:					
Ru	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Severe: floods, wetness, seepage.	Poor: wetness.
Saco Variant:					
Sa	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Scantic Variant:					
Sc	Severe: percs slowly, wetness.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness, too clayey.
Scarboro:					
Se	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Scituate:					
SgB	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: thin layer.
ShB	Severe: wetness, percs slowly, large stones.	Severe: large stones.	Severe: wetness, large stones.	Severe: wetness.	Poor: large stones.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Sudbury:					
SrB	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Poor: area reclaim.
Suncook:					
Su	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Poor: area reclaim.
Terrace escarpments:					
Te	Severe: slope.	Severe: slope, seepage.	Severe: slope, seepage.	Severe: slope, seepage.	Poor: slope.
Unadilla:					
UaB	Slight	Moderate: slope.	Slight	Slight	Good.
UaC	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Urban land:					
Ub.					
[2]UH:					
Urban land part.					
Hadley part	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage.	Severe: floods, seepage.	Good.
Winooski part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Good.
[2]UK:					
Urban land part.					
Hinckley part	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy.
Windsor part	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy.
[2]UW:					
Urban land part.					
Wethersfield part	Severe: percs slowly.	Severe: slope, small stones.	Moderate: wetness.	Severe: wetness.	Fair: small stones.
Paxton part	Severe: percs slowly.	Severe: slope.	Moderate: wetness.	Severe: wetness.	Fair: small stones.
Wareham:					
Wa	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
Wethersfield:					
WeB	Severe: percs slowly.	Moderate: slope, small stones.	Moderate: wetness.	Moderate: wetness.	Fair: small stones.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Wethersfield:					
WeC	Severe: percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.	Fair: small stones.
WfB	Severe: percs slowly.	Moderate: slope.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: large stones, thin layer.
WfC	Severe: percs slowly.	Severe: slope.	Moderate: wetness, large stones.	Moderate: wetness.	Fair: large stones, thin layer, slope.
WfD	Severe: slope, percs slowly.	Severe: slope.	Moderate: wetness, slope, large stones.	Severe: slope.	Poor: slope.
WgB	Severe: percs slowly, large stones.	Severe: large stones.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
WgC	Severe: percs slowly, large stones.	Severe: slope, large stones.	Severe: large stones.	Moderate: wetness.	Poor: large stones.
WgD	Severe: slope, percs slowly, large stones.	Severe: slope, large stones.	Severe: large stones.	Severe: slope.	Poor: slope, large stones.
Whitman:					
WhA	Severe: wetness, percs slowly, large stones.	Severe: large stones, small stones.	Severe: large stones, wetness.	Severe: wetness.	Poor: wetness.
Wilbraham:					
WmA, WmB	Severe: large stones, percs slowly.	Moderate: large stones.	Severe: large stones, wetness.	Severe: wetness.	Poor: wetness.
Windsor:					
WnA, WnB	Slight[1]	Severe: seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy.
WnC	Moderate[1]: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: seepage.	Poor: too sandy.
WnD	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope, seepage.	Poor: slope, too sandy.
WnE	Severe: slope.	Severe: slope, seepage.	Severe: slope, seepage.	Severe: slope, seepage.	Poor: slope, too sandy.
Winooski:					
Wo	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Good.
Woodbridge:					
WrA, WrB	Severe: percs slowly.	Moderate: small stones.	Severe: wetness.	Severe: wetness.	Fair: small stones.
WsB	Severe: percs slowly.	Moderate: large stones.	Severe: wetness.	Severe: wetness.	Fair: large stones.

See footnotes at end of table.

TABLE 9.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Woodbridge:					
WsC	Severe: percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Fair: large stones.
WtB	Severe: large stones, percs slowly.	Severe: large stones.	Severe: large stones, wetness.	Severe: wetness.	Poor: large stones.
WtC	Severe: large stones, percs slowly.	Severe: large stones, slope.	Severe: large stones, wetness.	Severe: wetness.	Poor: large stones.
WtD	Severe: large stones, slope.	Severe: large stones, slope.	Severe: large stones, wetness.	Severe: slope.	Poor: slope, large stones.

[1]Excessive permeability may allow pollution of ground water.
[2]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 10.--CONSTRUCTION MATERIALS

["Frost action" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," and "unsuited." Absence of an entry means soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Agawam:				
AgA, AgB	Good	Good	Good	Good.
AgC	Good	Good	Good	Fair: slope.
Amostown:				
AmB	Fair: frost action, low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Belgrade:				
BaB	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Broadbrook:				
BgB	Fair: frost action.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Fair: area reclaim.
BgC	Fair: frost action.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Fair: slope, area reclaim.
BhB, BhC	Fair: frost action.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
BhD	Fair: slope, frost action.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope, large stones.
BkB, BkC	Fair: large stones, frost action.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
Brookfield:				
BoB, BoC	Fair: large stones.	Unsuited: excess fines.	Poor: excess fines.	Poor: large stones.
BoD	Fair: slope, large stones.	Unsuited: excess fines.	Poor: excess fines.	Poor: large stones, slope.
[1]BrC:				
Brookfield part	Fair: large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
Rock outcrop part.				
Brimfield part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
[1]BrD:				
Brookfield part	Fair: slope, large stones.	Unsuited: excess fines. large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
Rock outcrop part.				
Brimfield part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Buxton Variant:				
BuB	Poor: frost action, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Carver:				
CaA, CaB, CaC	Good	Good	Unsuited: excess fines.	Poor: too sandy, area reclaim.
Charlton:				
CkB	Good	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Fair: small stones.
CkC	Good	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Fair: small stones, slope.
CmB, CmC	Good	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
CmD	Fair: slope.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
CnB, CnC	Fair: large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
CnD	Fair: slope, large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
[1]COE:				
Charlton part	Poor: slope.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
Narragansett part	Poor: slope.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope, large stones.
[1]CpB:				
Charlton part	Fair: large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
Hollis part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
Rock outcrop part.				
[1]CpC:				
Charlton part	Fair: large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
Hollis part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
Rock outcrop part.				
[1]CrC:				
Charlton part	Fair: large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
Rock outcrop part.				

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Charlton:				
[1]CrC:				
Hollis part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer. area reclaim.
[1]CrD:				
Charlton part	Fair: slope, large stones.	Unsuited: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
Rock outcrop part.				
Hollis part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.
Deerfield:				
De	Good	Good	Unsuited: excess fines.	Poor: too sandy.
Eldridge:				
EdB	Fair: low strength, frost action.	Unsuited: thin layer, excess fines.	Unsuited: excess fines.	Fair: too sandy.
Enfield:				
EnA, EnB	Good	Good	Good	Fair: area reclaim.
EnC	Good	Good	Good	Fair: slope, area reclaim.
Enosburg:				
Es	Poor: wetness.	Poor: thin layer.	Unsuited: excess fines.	Poor: too sandy, wetness.
Gloucester:				
GfB	Good	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: small stones.
GhB, GhC	Good	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, small stones.
GxB, GxC, GxD	Fair: large stones.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, small stones.
Hadley:				
Ha, HbA, HbB	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Good.
Hinckley:				
HgA, HgB, HgC	Good	Good	Good	Poor: too sandy, area reclaim.
HgD	Fair: slope.	Good	Good	Poor: slope, too sandy, area reclaim.
HgE	Poor: slope.	Good	Good	Poor: slope, too sandy, area reclaim.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Holyoke:				
HoB, HoC	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
[1]HrC:				
Holyoke part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
Rock outcrop part.				
Limerick:				
Lk	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Ludlow:				
LuB	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: small stones.
LwB, LxB, LxC	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
Meckesville:				
MaB, MaC	Fair: frost action, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: small stones.
MaD	Fair: slope, frost action, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope, small stones.
MbB	Fair: frost action, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
MbC	Fair: slope, frost action, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
MbD, McD	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope, large stones.
McB	Fair: large stones, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
McC	Fair: slope, large stones, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: large stones.
Merrimac:				
MeA, MeB	Good	Good	Good	Fair: thin layer, area reclaim.
MeC	Good	Good	Good	Fair: slope, thin layer, area reclaim.
MeD	Fair: slope.	Good	Good	Poor: slope.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Montauk:				
MmB	Fair: frost action.	Poor: excess fines.	Poor: excess fines.	Fair: thin layer.
MnB, MnC	Fair: frost action, large stones.	Poor: excess fines.	Poor: excess fines.	Poor: large stones, small stones.
Muck,deep:				
Mu	Poor: wetness, excess humus.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness.
Muck, shallow:				
Mx	Poor: wetness, excess humus.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness.
Narragansett:				
NaB	Fair: frost action.	Unsuited: excess fines.	Poor: excess fines.	Fair: small stones.
NaC	Fair: frost action.	Unsuited: excess fines.	Poor: excess fines.	Fair: slope, small stones.
NbB, NbC	Fair: frost action.	Unsuited: excess fines.	Poor: excess fines.	Poor: large stones.
NcB, NcC	Fair: frost action, large stones.	Unsuited: excess fines.	Poor: excess fines.	Poor: large stones.
NcD	Fair: slope, frost action, large stones.	Unsuited: excess fines.	Poor: excess fines.	Poor: slope, large stones.
Ninigret:				
Ng	Fair: frost action.	Good	Fair: excess fines.	Good.
Paxton:				
PaB, PaC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: small stones.
PbB, PbC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
PbD	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
PcB, PcC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
PcD	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones, slope.
Peat:				
Pe	Poor: wetness, excess humus, low strength.	Unsuited: excess humus.	Unsuited: excess humus.	Poor: wetness.
Podunk:				
Po	Fair: frost action.	Fair: excess fines.	Unsuited: excess fines.	Good.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Pollux:				
PuA, PuB	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
PuC	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
Raynham:				
Ra	Poor: frost action, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Ridgebury:				
Rd	Poor: frost action, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
ReA, ReB	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, large stones.
Rock outcrop:				
Rf.				
[1]RHD:				
Rock outcrop part.				
Holyoke part	Poor: thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: thin layer, area reclaim.
[1]RHE:				
Rock outcrop part.				
Holyoke part	Poor: slope, thin layer, area reclaim.	Unsuited: excess fines, thin layer.	Unsuited: excess fines, thin layer.	Poor: slope, thin layer, area reclaim.
Rumney:				
Ru	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Saco Variant:				
Sa	Poor: wetness, frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Scantic Variant:				
Sc	Poor: low strength, frost action, wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Scarboro:				
Se	Poor: wetness.	Good	Poor: excess fines.	Poor: wetness, too sandy.
Scituate:				
SgB	Fair: frost action.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Fair: thin layer.
ShB	Fair: frost action, large stones.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Poor: large stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Sudbury:				
SrB	Fair: frost action.	Good	Good	Fair: small stones, area reclaim.
Suncook:				
Su	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Terrace escarpments:				
Te	Poor: slope.	Poor: excess fines.	Fair: excess fines.	Poor: slope, small stones.
Unadilla:				
UaB	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
UaC	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
Urban land:				
Ub.				
[1]UH:				
Urban land part.				
Hadley part	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Good.
Winooski part	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Good.
[1]UK:				
Urban land part.				
Hinckley part	Good	Good	Good	Poor: too sandy, area reclaim.
Windsor part	Good	Good	Poor: excess fines.	Poor: too sandy.
[1]UW:				
Urban land part.				
Wethersfield part	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines. large stones.	Poor: small stones.
Paxton part	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: small stones.
Wareham:				
Wa	Poor: wetness.	Fair: excess fines.	Unsuited: excess fines.	Poor: wetness.
Wethersfield:				
WeB, WeC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: small stones.
WfB, WfC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.
WfD	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope, large stones.
WgB, WgC	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: large stones.

See footnote at end of table.

TABLE 10.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Weathersfield:				
WgD	Fair: frost action.	Poor: excess fines, large stones.	Poor: excess fines, large stones.	Poor: slope, large stones.
Whitman:				
WhA	Poor: frost action.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Wilbraham:				
WmA, WmB	Poor: wetness, frost action.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Poor: wetness, large stones.
Windsor:				
WnA, WnB, WnC	Good	Good	Poor: excess fines.	Poor: too sandy.
WnD	Fair: slope.	Good	Poor: excess fines.	Poor: slope, too sandy.
WnE	Poor: slope.	Good	Poor: excess fines.	Poor: slope, too sandy.
Winooski:				
Wo	Poor: frost action.	Poor: excess fines.	Unsuited: excess fines.	Good.
Woodbridge:				
WrA, WrB	Poor: frost action.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Fair: small stones.
WsB, WsC, WtB, WtC	Poor: frost action.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Poor: large stones.
WtD	Poor: frost action.	Unsuited: excess fines, large stones.	Unsuited: excess fines, large stones.	Poor: slope, large stones.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 11.--WATER MANAGEMENT

["Seepage," and some of the other terms that describe restrictive soil features are defined in the Glossary. Absence of an entry means soil was not evaluated]

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Agawam:						
AgA, AgB, AgC	Seepage, slope.	Seepage, piping.	No water	Not needed	Slope, erodes easily.	Slope, erodes easily.
Amostown:						
AmB	Seepage, slope.	Piping, compressible.	Slow refill	Favorable	Wetness	Wetness.
Belgrade:						
BaB	Slope	Piping, erodes easily, low strength.	Deep to water	Wetness	Slope, wetness, erodes easily.	Slope, wetness, erodes easily.
Broadbrook:						
BgB, BgC	Slope	Seepage, piping, hard to pack.	No water	Not needed	Slope, percs slowly, erodes easily.	Slope, percs slowly, erodes easily.
BhB, BhC, BhD, BkB, BkC	Slope	Large stones, seepage, piping.	No water	Not needed	Large stones, slope, erodes easily.	Large stones, slope, erodes easily.
Brookfield:						
BoB, BoC, BoD	Seepage, slope.	Seepage, large stones.	No water	Not needed	Large stones, slope.	Large stones, slope.
[1]BrC:						
Brookfield part	Seepage, slope.	Seepage, large stones.	No water	Not needed	Large stones, slope.	Large stones, slope.
Rock outcrop part.						
Brimfield part	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
[1]BrD:						
Brookfield part	Seepage, slope.	Seepage, large stones.	No water	Not needed	Large stones, slope.	Large stones, slope.
Rock outcrop part.						
Brimfield part	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Buxton Variant:						
BuB	Favorable	Piping, erodes easily.	Slow refill	Percs slowly	Percs slowly, erodes easily.	Percs slowly, erodes easily.
Carver:						
CaA, CaB, CaC	Slope, seepage.	Seepage	No water	Not needed	Slope, too sandy.	Slope, too sandy.
Charlton:						
CkB, CkC	Seepage, slope.	Seepage	No water	Not needed	Slope	Slope.
CmB, CmC, CmD, CnB, CnC, CnD	Seepage, slope.	Seepage, large stones.	No water	Not needed	Large stones, slope.	Large stones, slope.
[1]COE:						
Charlton part	Seepage, slope.	Seepage, large stones.	No water	Not needed	Large stones, slope.	Large stones, slope.
Narragansett part	Slope, seepage.	Piping, erodes easily, large stones.	No water	Not needed	Slope, erodes easily, large stones.	Slope, erodes easily, large stones.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Charlton:						
[1]CpB:						
Charlton part--	Seepage, slope.	Seepage, large stones.	No water-------	Not needed-----	Large stones, slope.	Large stones, slope.
Hollis part----	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed-----	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Rock outcrop part.						
[1]CpC:						
Charlton part--	Seepage, slope.	Seepage, large stones.	No water-------	Not needed-----	Large stones, slope.	Large stones, slope.
Hollis part----	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed-----	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Rock outcrop part.						
[1]CrC:						
Charlton part--	Seepage, slope.	Seepage, large stones.	No water-------	Not needed-----	Large stones, slope.	Large stones, slope.
Rock outcrop part.						
Hollis part----	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed-----	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
[1]CrD:						
Charlton part--	Seepage, slope.	Seepage, large stones.	No water-------	Not needed-----	Large stones, slope.	Large stones, slope.
Rock outcrop part.						
Hollis part----	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed-----	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Deerfield:						
De----------	Seepage--------	Seepage, unstable fill.	Deep to water	Not needed-----	Too sandy------	Droughty.
Eldridge:						
EdB----------	Slope, seepage.	Piping, low strength.	Deep to water	Cutbanks cave	Slope, too sandy.	Slope, wetness.
Enfield:						
EnA, EnB, EnC----	Slope, seepage.	Seepage, piping.	No water-------	Not needed-----	Slope, piping, erodes easily.	Slope, erodes easily.
Enosburg:						
Es----------	Slope----------	Piping---------	Favorable------	Poor outlets, cutbanks cave.	Too sandy, poor outlets.	Wetness.
Gloucester:						
GfB----------	Seepage, deep to water.	Seepage, small stones.	No water, large stones.	Not needed-----	Slope----------	Droughty.
GhB, GhC, GxB, GxC, GxD---------	Seepage, deep to water, large stones.	Seepage, large stones.	No water, large stones.	Not needed-----	Large stones, slope.	Droughty, large stones.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Hadley: Ha, HbA, HbB	Seepage	Piping, seepage.	No water	Not needed	Not needed	Not needed.
Hinckley: HgA, HgB, HgC, HgD, HgE	Slope, seepage.	Thin layer, seepage.	No water	Not needed	Slope, too sandy.	Slope, droughty.
Holyoke: HoB, HoC	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
[1]HrC: Holyoke part	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Rock outcrop part.						
Limerick: Lk	Seepage	Piping, low strength.	Favorable	Wetness, floods.	Not needed	Wetness.
Ludlow: LuB	Slope	Low strength	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
LwB, LxB, LxC	Slope	Low strength, large stones.	Deep to water, large stones.	Percs slowly, slope.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
Meckesville: MaB, MaC, MaD	Slope	Piping	No water	Not needed	Slope	Slope.
MbB, MbC, MbD, McB, McC, McD	Slope, large stones.	Large stones, slope, piping.	No water	Not needed	Large stones, slope.	Slope, large stones.
Merrimac: MeA, MeB, MeC, MeD	Slope, seepage.	Seepage	No water	Not needed	Slope, too sandy.	Slope, droughty.
Montauk: MmB	Slope, seepage.	Piping	No water	Not needed	Percs slowly, erodes easily, slope.	Percs slowly, slope, erodes easily.
MnB, MnC	Slope	Large stones, piping.	No water	Not needed	Large stones, percs slowly, slope.	Large stones, percs slowly, slope.
Muck, deep: Mu	Excess humus, seepage.	Excess humus, hard to pack, seepage.	Favorable	Poor outlets, excess humus, floods.	Not needed	Not needed.
Muck, shallow: Mx	Excess humus, seepage.	Excess humus, seepage, hard to pack.	Favorable	Poor outlets, excess humus, floods.	Not needed	Not needed.
Narragansett: NaB, NaC	Slope, seepage.	Piping, erodes easily.	No water	Not needed	Slope, erodes easily.	Slope, erodes easily.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Narragansett: NbB, NbC, NcB, NcC, NcD	Slope, seepage.	Piping, erodes easily.	No water	Not needed	Slope, erodes easily, large stones.	Slope, erodes easily, large stones.
Ninigret: Ng	Slope, seepage.	Seepage, piping.	Deep to water	Wetness, slope.	Slope, wetness.	Slope, wetness.
Paxton: PaB, PaC	Favorable, slope.	Favorable	No water	Not needed	Percs slowly, erodes easily.	Percs slowly, slope, erodes easily.
PbB, PbC, PbD, PcB, PcC, PcD	Favorable, slope.	Large stones	No water	Not needed	Large stones, percs slowly.	Large stones, percs slowly.
Peat: Pe	Excess humus, seepage.	Excess humus, low strength, seepage.	Favorable	Poor outlets, excess humus, floods.	Not needed	Not needed.
Podunk: Po	Floods, seepage.	Piping, erodes easily.	Floods, deep to water.	Poor outlets, floods.	Not needed	Not needed.
Pollux: PuA, PuB, PuC	Favorable	Piping, erodes easily.	No water	Not needed	Favorable	Favorable.
Raynham: Ra	Favorable	Piping, low strength.	Favorable	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly, erodes easily.
Ridgebury: Rd	Slope	Favorable	Favorable	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
ReA, ReB	Slope	Large stones	Large stones	Wetness, percs slowly.	Wetness, large stones, percs slowly.	Wetness, large stones, percs slowly.
Rock outcrop: Rf.						
[1]RHD: Rock outcrop part.						
Holyoke part	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
[1]RHE: Rock outcrop part.						
Holyoke part	Slope, depth to rock, seepage.	Thin layer, piping, seepage.	No water, depth to rock.	Not needed	Slope, depth to rock, rooting depth.	Slope, droughty, rooting depth.
Rumney: Ru	Wetness, seepage.	Piping, seepage.	Favorable	Wetness, floods.	Not needed	Wetness.
Saco Variant: Sa	Wetness	Low strength, piping.	Favorable	Wetness, floods.	Not needed	Wetness.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Scantic Variant: Sc	Favorable	Piping, erodes easily.	Favorable	Wetness, percs slowly.	Not needed	Wetness, percs slowly, erodes easily.
Scarboro: Se	Seepage	Hard to pack, seepage.	Favorable	Cutbanks cave, wetness.	Wetness	Wetness.
Scituate: SgB	Slope	Piping	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
ShB	Slope	Piping, large stones.	Deep to water, large stones.	Percs slowly, slope.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.
Sudbury: SrB	Slope, seepage.	Piping, seepage.	Deep to water	Favorable	Slope, too sandy.	wetness, slope.
Suncook: Su	Seepage, floods.	Seepage, erodes easily.	Deep to water	Not needed	Not needed	Not needed.
Terrace escarpments: Te	Slope, seepage.	Seepage	No water	Not needed	Slope	Slope.
Unadilla: UaB, UaC	Seepage	Low strength, piping, seepage.	Deep to water	Not needed	Not needed	Erodes easily.
Urban land: Ub.						
[1]UH: Urban land part.						
Hadley part	Seepage	Piping, seepage.	No water	Not needed	Not needed	Not needed.
Winooski part	Seepage	Piping	Deep to water	Floods, poor outlets.	Not needed	Not needed.
[1]UK: Urban land part.						
Hinckley part	Slope, seepage.	Thin layer, seepage.	No water	Not needed	Slope, too sandy.	Slope, droughty.
Windsor part	Seepage, slope.	Seepage, piping.	No water	Not needed	Piping, slope, too sandy.	Droughty, slope.
[1]UW: Urban land part.						
Wethersfield part	Slope	Favorable	No water	Not needed	Percs slowly, erodes easily.	Percs slowly, slope, erodes easily.
Paxton part	Slope	Favorable	No water	Not needed	Percs slowly, erodes easily.	Percs slowly, slope, erodes easily.

See footnote at end of table.

TABLE 11.--WATER MANAGEMENT--Continued

Soil name and map symbol	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Wareham: Wa	Seepage	Piping, seepage.	Favorable	Wetness	Piping, wetness.	Wetness.
Wethersfield: WeB, WeC	Favorable, slope.	Favorable	No water	Not needed	Percs slowly, erodes easily.	Percs slowly, slope, erodes easily.
wfB, WfC, wfD, WgB, wgC, WgD	Favorable, slope.	Large stones	No water	Not needed	Large stones, percs slowly.	Large stones, percs slowly.
Whitman: WhA	Favorable	Large stones	Large stones	Wetness, percs slowly.	Large stones, wetness, percs slowly.	Large stones, wetness, percs slowly.
Wilbraham: WmA, WmB	Slope	Large stones	Large stones	Wetness, percs slowly.	Wetness, large stones, percs slowly.	Wetness, large stones, percs slowly.
Windsor: WnA, WnB, WnC, WnD, WnE	Seepage, slope.	Seepage, piping.	No water	Not needed	Piping, slope, too sandy.	Droughty, slope.
Winooski: Wo	Seepage	Piping	Deep to water	Floods, poor outlets.	Not needed	Not needed.
Woodbridge: WrA, wrB	Slope	Favorable	Deep to water	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
WsB, WsC, WtB, WtC, WtD	Slope, large stones.	Large stones	Deep to water, large stones.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.	Percs slowly, slope, large stones.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 12.--RECREATIONAL DEVELOPMENT

["Percs slowly" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe"]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Agawam:				
AgA	Slight	Slight	Slight	Slight.
AgB	Slight	Slight	Moderate: slope.	Slight.
AgC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Amostown:				
AmB	Slight	Slight	Moderate: slope.	Slight.
Belgrade:				
BaB	Slight	Slight	Moderate: slope.	Slight.
Broadbrook:				
BgB	Moderate: percs slowly.	Slight	Moderate: slope, percs slowly.	Slight.
BgC	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.
BhB	Moderate: large stones, percs slowly.	Slight	Moderate: slope, large stones.	Moderate: large stones.
BhC	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.
BhD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.
BkB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
BkC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
Brookfield:				
BoB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
BoC	Severe: large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Severe: large stones.
BoD	Severe: large stones, slope.	Severe: slope.	Severe: large stones, slope.	Severe: large stones.
[1]BrC:				
Brookfield part	Severe: large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Severe: large stones.
Rock outcrop part.				
Brimfield part	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
[1]BrD:				
Brookfield part	Severe: large stones, slope.	Severe: slope.	Severe: large stones, slope.	Severe: large stones.
Rock outcrop part.				

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Brookfield:				
[1]BrD:				
Brimfield part	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.
Buxton Variant:				
BuB	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: slope, percs slowly.	Slight.
Carver:				
CaA	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
CaB	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
CaC	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope.	Moderate: too sandy.
Charlton:				
CkB	Slight	Slight	Moderate: slope.	Slight.
CkC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
CmB	Moderate: large stones.	Slight	Moderate: large stones, slope.	Moderate: large stones.
CmC	Moderate: large stones, slope.	Moderate: slope.	Severe: slope.	Moderate: large stones.
CmD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones, slope.
CnB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
CnC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
CnD	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.
[1]COE:				
Charlton part	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: slope, large stones.
Narragansett part	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: slope, large stones.
[1]CpB:				
Charlton part	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
Hollis part	Slight	Slight	Severe: depth to rock.	Slight.
Rock outcrop part.				
[1]CpC:				
Charlton part	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Charlton:				
[1]CpC:				
Hollis part	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
Rock outcrop part.				
[1]CrC:				
Charlton part	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
Rock outcrop part.				
Hollis part	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
[1]CrD:				
Charlton part	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.
Rock outcrop part.				
Hollis part	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Moderate: slope.
Deerfield:				
De	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.
Eldridge:				
EdB	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
Enfield:				
EnA	Slight	Slight	Slight	Slight.
EnB	Slight	Slight	Moderate: slope.	Slight.
EnC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Enosburg:				
Es	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Gloucester:				
GfB	Slight: small stones.	Slight: small stones.	Moderate: slope.	Slight.
GhB	Moderate: large stones.	Slight	Moderate: slope.	Moderate: large stones.
GhC	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: large stones.
GxB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
GxC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope.	Severe: large stones.
GxD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones.
Hadley:				
Ha	Severe: floods.	Moderate: floods.	Severe: floods.	Slight.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Hadley:				
HbA, HbB	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
Hinckley:				
HgA, HgB	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
HgC	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.
HgD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: too sandy.
HgE	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Holyoke:				
HoB	Slight	Slight	Severe: depth to rock.	Slight.
HoC	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
[1]HrC:				
Holyoke part	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
Rock outcrop part.				
Limerick:				
Lk	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.
Ludlow:				
LuB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
LwB	Moderate: large stones.	Slight	Moderate: percs slowly.	Moderate: large stones.
LxB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
LxC	Severe: large stones.	Moderate: large stones.	Severe: slope.	Severe: large stones.
Meckesville:				
MaB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
MaC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight.
MaD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Meckesville:				
MbB	Moderate: large stones, percs slowly.	Slight	Moderate: slope, large stones, percs slowly.	Moderate: large stones.
MbC	Moderate: slope, large stones, percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.
MbD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.
McB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
McC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
McD	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.
Merrimac:				
MeA	Slight	Slight	Slight	Slight.
MeB	Slight	Slight	Moderate: slope.	Slight.
MeC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
MeD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.
Montauk:				
MmB	Slight	Slight	Moderate: slope.	Slight.
MnB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
MnC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
Muck, deep:				
Mu	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.
Muck, shallow:				
Mx	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.
Narragansett:				
NaB	Slight	Slight	Moderate: slope.	Slight.
NaC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Narragansett:				
NbB	Moderate: large stones.	Slight	Moderate: slope, large stones.	Moderate: large stones.
NbC	Moderate: slope, large stones.	Moderate: slope.	Severe: slope.	Moderate: large stones.
NcB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
NcC	Severe: large stones.	Moderate: slope, large stones.	Severe: slope, large stones.	Severe: large stones.
NcD	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.
Ninigret:				
Ng	Slight	Slight	Moderate: wetness.	Slight.
Paxton:				
PaB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
PaC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight.
PbB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Moderate: large stones.
PbC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.
PbD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: large stones.
PcB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
PcC	Severe: large stones.	Moderate: large stones.	Severe: slope.	Severe: large stones.
PcD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones.
Peat:				
Pe	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.
Podunk:				
Po	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
Pollux:				
PuA	Slight	Slight	Slight	Slight.
PuB	Slight	Slight	Moderate: slope.	Slight.
PuC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Raynham:				
Ra	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Ridgebury:				
Rd	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReA, ReB	Severe: wetness, large stones.	Severe: wetness.	Severe: wetness, large stones.	Severe: wetness, large stones.
Rock outcrop:				
Rf.				
[1]RHD:				
Rock outcrop part.				
Holyoke part	Moderate: slope.	Moderate: slope.	Severe: slope, depth to rock.	Slight.
[1]RHE:				
Rock outcrop part.				
Holyoke part	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.
Rumney:				
Ru	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.
Saco Variant:				
Sa	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.
Scantic Variant:				
Sc	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Scarboro:				
Se	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Scituate:				
SgB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
ShB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
Sudbury:				
SrB	Slight	Slight	Moderate: slope, wetness.	Slight.
Suncook:				
Su	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
Terrace escarpments:				
Te	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Unadilla:				
UaB	Slight	Slight	Moderate: slope.	Slight.
UaC	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Urban land:				
Ub.				
[1]UH:				
Urban land part.				

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Urban land:				
[1]UH:				
Hadley part	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
Winooski part	Severe: floods.	Moderate: floods.	Moderate: floods.	Slight.
[1]UK:				
Urban land part.				
Hinckley part	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
Windsor part	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.
[1]UW:				
Urban land part.				
Wethersfield part	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight.
Paxton part	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight.
Wareham:				
Wa	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Wethersfield:				
WeB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
WeC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Slight.
WfB	Moderate: percs slowly.	Slight.	Moderate: percs slowly.	Moderate: large stones.
WfC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.
WfD	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope, large stones.
WgB	Severe: large stones.	Moderate: large stones.	Severe: large stones.	Severe: large stones.
WgC	Severe: large stones.	Moderate: large stones.	Severe: slope, large stones.	Severe: large stones.
WgD	Severe: slope, large stones.	Severe: slope.	Severe: slope, large stones.	Severe: large stones.
Whitman:				
WhA	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Wilbraham:				
WmA, WmB	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Windsor:				
WnA, WnB	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.
WnC	Moderate: slope, too sandy.	Moderate: slope, too sandy.	Severe: slope, too sandy.	Moderate: too sandy.

See footnote at end of table.

TABLE 12.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Windsor:				
WnD	Severe: slope.	Severe: slope.	Severe: slope, too sandy.	Moderate: too sandy.
WnE	Severe: slope.	Severe: slope.	Severe: slope, too sandy.	Severe: slope, too sandy.
Winooski:				
Wo	Severe: floods.	Moderate: floods.	Severe: floods.	Slight.
Woodbridge:				
WrA, WrB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Severe: slope.
WsB	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Moderate: large stones.
WsC	Moderate: percs slowly.	Moderate: slope.	Severe: slope.	Moderate: large stones.
WtB	Severe: large stones.	Severe: large stones.	Severe: large stones.	Severe: large stones.
WtC	Severe: large stones.	Severe: large stones.	Severe: slope.	Severe: large stones.
WtD	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 13.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Agawam:										
AgA	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AgB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AgC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Amostown:										
AmB	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Belgrade:										
BaB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Broadbrook:										
BgB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BgC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BhB, BhC, BhD	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
BkB, BkC	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Brookfield:										
BoB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
BoC, BoD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
[1]BrC:										
Brookfield part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor
Rock outcrop part.										
Brimfield part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
[1]BrD:										
Brookfield part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop part.										
Brimfield part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Fair	Very poor.
Buxton Variant:										
BuB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Carver:										
CaA, CaB	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CaC	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Charlton:										
CkB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CkC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CmB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
CmC, CmD	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
CnB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
CnC, CnD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
[1]COE:										
Charlton part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Narragansett part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
[1]CpB:										
Charlton part	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
Hollis part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop part.										
[1]CpC:										
Charlton part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Hollis part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop part.										
[1]CrC:										
Charlton part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop part.										
Hollis part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
[1]CrD:										
Charlton part	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop part.										
Hollis part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Deerfield:										
De	Poor	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Eldridge:										
EdB	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Enfield:										
EnA	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EnB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EnC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Enosburg:										
Es	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Gloucester:										
GfB	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
GhB, GhC	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
GxB, GxC, GxD	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Hadley:										
Ha, HbA, HbB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Hinckley:										
HgA, HgB, HgC, HgD	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
HgE	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Holyoke:										
HoB, HoC	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
[1]HrC:										
Holyoke part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rock outcrop part.										
Limerick:										
Lk	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Ludlow:										
LuB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LwB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
LxB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ludlow:										
LxC	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Meckesville:										
MaB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MaC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MaD	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MbB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
MbC, MbD	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
McB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
McC, McD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Merrimac:										
MeA, MeB, MeC	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
MeD	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Montauk:										
MmB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MnB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
MnC	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Muck,deep:										
Mu	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Muck,shallow:										
Mx	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Narragansett:										
NaB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NaC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NbB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
NbC	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
NcB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Narragansett: NcC, NcD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Ninigret: Ng	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Paxton: PaB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PaC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PbB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
PbC, PbD	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
PcB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
PcC, PcD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Peat: Pe	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Podunk: Po	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Pollux: PuA, PuB, PuC	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Raynham: Ra	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Ridgebury: Rd	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
ReA	Very poor.	Very poor.	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
ReB	Very poor.	Very poor.	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Rock outcrop: Rf.										
[1]RHD: Rock outcrop part.										
Holyoke part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
[1]RHE: Rock outcrop part.										
Holyoke part	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Rumney: Ru	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Saco Variant:										
Sa	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Scantic Variant:										
Sc	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Scarboro:										
Se	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Scituate:										
SgB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ShB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
Sudbury:										
SrB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Suncook:										
Su	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Terrace escarpments:										
Te	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Unadilla:										
UaB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
UaC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land:										
Ub.										
[1]UH:										
Urban land part.										
Hadley part	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Winooski part	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
[1]UK:										
Urban land part.										
Hinckley part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Windsor part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
[1]UW:										
Urban land part.										
Wethersfield part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Paxton part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 13.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Wareham:										
Wa	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Wethersfield:										
WeB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WeC	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WfB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
WfC, WfD	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
WgB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
WgC, WgD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Whitman:										
WhA	Very poor.	Very poor.	Poor	Poor	Poor	Good	Fair	Very poor.	Poor	Fair.
Wilbraham:										
wmA	Very poor.	Very poor.	Fair	Fair	Fair	Good	Fair	Poor	Fair	Fair.
wmB	Very poor.	Very poor.	Fair	Fair	Fair	Poor	Very poor.	Poor	Fair	Very poor.
Windsor:										
WnA, WnB, wnC, WnD	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
WnE	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Winooski:										
Wo	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Woodbridge:										
WrA	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
WrB	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WsB	Very poor.	Poor	Good	Good	Good	Poor	Very poor.	Poor	Good	Very poor.
WsC	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
WtB	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
WtC, WtD	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Agawam:											
AgA, AgB, AgC-----	0-10	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	85-100	40-65	---	NP
	10-15	Fine sandy loam, very fine sandy loam, loam.	SM, ML	A-4	0	95-100	85-100	80-100	40-65	---	NP
	15-25	Fine sandy loam	SM, SW-SM	A-2, A-3, A-4	0	90-100	85-100	75-95	5-45	---	NP
	25-60	Fine sand, loamy fine sand, gravelly loamy sand.	GM, SM, SP-SM, ML	A-2, A-3, A-4	0	40-100	30-100	15-85	5-55	---	NP
Amostown:											
AmB----------	0-10	Fine sandy loam	SM, ML	A-2, A-4	0	95-100	90-100	55-95	30-70	---	NP
	10-32	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	85-100	80-100	50-85	25-50	---	NP
	32-60	Stratified fine sand to silt.	ML, SM	A-4, A-2	0	100	100	65-100	25-90	---	NP
Belgrade:											
BaB----------	0-12	Silt loam-------	ML, CL	A-4	0	100	95-100	90-100	55-90	<40	NP-8
	12-28	Silt loam, very fine sandy loam.	ML, CL	A-4	0	100	95-100	90-100	55-90	<40	NP-8
	28-60	Silt loam, very fine sandy loam.	ML, CL	A-4	0	100	95-100	90-100	50-90	<40	NP-8
Broadbrook:											
BgB, BgC----------	0-5	Gravelly silt loam.	ML, SM	A-4	0-5	80-100	70-100	60-100	40-90	<25	NP-4
	5-20	Gravelly silt loam, very fine sandy loam, loam.	ML, SM	A-4	0-5	80-100	70-100	60-100	40-90	<25	NP-4
	20-60	Gravelly sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0-25	65-90	55-90	35-85	20-65	---	NP
BhB, BhC, BhD-----	0-5	Very stony silt loam.	ML	A-4	15-20	85-100	80-95	70-90	50-85	<25	NP-4
	5-20	Silt loam, very fine sandy loam, loam.	ML, SM	A-4	5-10	80-100	70-100	60-100	40-90	<25	NP-4
	20-60	Gravelly sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	5-25	65-90	55-90	35-85	20-65	---	NP
BkB, BkC----------	0-5	Extremely stony silt loam.	ML	A-4	20-35	90-100	85-95	70-90	50-85	<25	NP-4
	5-20	Silt loam, very fine sandy loam, loam.	ML, SM	A-4	5-10	80-100	70-100	60-100	40-90	<25	NP-4
	20-60	Gravelly sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	5-25	65-90	55-90	35-85	20-65	---	NP
Brookfield:											
BoB, BoC, BoD-----	0-5	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	15-35	80-95	75-95	55-80	30-65	<25	NP-3
	5-30	Fine sandy loam, sandy loam, gravelly fine sandy loam.	SM	A-2, A-4	5-15	80-95	75-95	45-70	25-50	---	NP
	30-60	Fine sandy loam, fine gravelly sandy loam, loamy sand.	SM	A-2, A-4	5-15	75-90	70-85	40-60	25-40	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
[1]BrC:											
Brookfield part-	0-5	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	15-35	80-95	75-95	55-80	30-65	<25	NP-3
	5-30	Fine sandy loam, sandy loam, gravelly fine sandy loam.	SM	A-2, A-4	5-15	80-95	75-95	45-70	25-50	---	NP
	30-60	Fine sandy loam, gravelly sandy loam, loamy sand.	SM	A-2, A-4	5-15	75-90	70-85	40-60	25-40	---	NP
Rock outcrop part.											
Brimfield part--	0-2	Fine sandy loam	SM	A-2, A-4	0-15	80-95	70-85	50-70	30-45	<20	NP-3
	2-13	Fine sandy loam, sandy loam.	SM	A-2, A-4	0-15	80-95	70-85	40-70	20-45	<20	NP-3
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
[1]BrD:											
Brookfield part-	0-5	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	15-35	80-95	75-95	55-80	30-65	<25	NP-3
	5-30	Fine sandy loam, sandy loam, gravelly fine sandy loam.	SM	A-2, A-4	5-15	80-95	75-95	45-70	25-50	---	NP
	30-60	Fine sandy loam, gravelly sandy loam, loamy sand.	SM	A-2, A-4	5-15	75-90	70-85	40-60	25-40	---	NP
Rock outcrop part.											
Brimfield part--	0-2	Fine sandy loam	SM	A-2, A-4	0-15	80-95	70-85	50-70	30-45	<20	NP-3
	2-13	Fine sandy loam, sandy loam.	SM	A-2, A-4	0-15	80-95	70-85	40-70	20-45	<20	NP-3
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Buxton Variant:											
BuB----------	0-9	Silt loam-------	ML	A-4, A-5, A-6, A-7	0	100	100	90-100	70-90	35-50	5-15
	9-24	Silt loam, silty clay loam.	ML, CL	A-4, A-5, A-6, A-7	0	100	100	90-100	70-95	30-45	5-20
	24-60	Silty clay, silty clay loam, clay.	CL, ML	A-5, A-6, A-7	0	100	100	90-100	70-95	30-45	10-20
Carver:											
CaA, CaB, CaC-----	0-11	Loamy coarse sand.	SM	A-2, A-1	0	95-100	90-100	45-75	15-30	<35	NP
	11-25	Coarse sand, loamy coarse sand.	SM, SP-SM	A-2, A-1, A-3	0	95-100	90-100	45-75	5-30	<35	NP
	25-60	Coarse sand-----	SM, SP-SM	A-1, A-3, A-2	0	95-100	90-100	45-65	5-15	<35	NP
Charlton:											
CkB, CkC----------	0-7	Fine sandy loam	SM, ML	A-2, A-4	5-10	80-100	70-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Charlton:											
CmB, CmC, CmD-----	0-7	Very stony fine sandy loam.	SM, ML	A-2, A-4	20-25	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
CnB, CnC, CnD-----	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
[1]COE:											
Charlton part---	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
Narragansett part----------	0-8	Extremely stony very fine sandy loam.	ML, SM, CL-ML	A-4	25-35	90-100	85-95	75-95	50-85	<35	NP-6
	8-28	Silt loam, very fine sandy loam.	ML, SM	A-4	5-15	90-100	75-85	65-85	40-75	<35	NP-4
	28-60	Gravelly coarse sandy loam, gravelly fine sandy loam, gravelly loamy sand.	SM, SP	A-1, A-2, A-4	5-15	55-80	50-70	20-60	2-35	---	NP
[1]CpB:											
Charlton part---	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly fine sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
Hollis part-----	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	7-14	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop part.											

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Charlton:											
[1]CpC:											
Charlton part---	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
Hollis part-----	0-7	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	7-14	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop part.											
[1]CrC:											
Charlton part---	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
Rock outcrop part.											
Hollis part-----	0-7	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	7-14	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
[1]CrD:											
Charlton part---	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	25-35	80-100	60-100	40-85	25-55	---	---
	7-28	Fine sandy loam, gravelly sandy loam, loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-95	20-75	---	---
	28-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam.	SM, ML	A-2, A-4	5-15	80-100	60-100	35-85	20-55	---	---
Rock outcrop part.											
Hollis part-----	0-7	Fine sandy loam	SM, ML	A-2, A-4	0-15	75-100	65-95	40-85	25-70	<20	NP-3
	7-14	Fine sandy loam, sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	75-95	65-95	40-80	20-65	---	NP
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
Deerfield:											
De	0-10	Loamy fine sand	SM	A-2, A-4	0	95-100	80-100	65-95	20-45	---	NP
	10-25	Loamy sand, sand, coarse sand, loamy fine sand.	SP, SM	A-1, A-2, A-3	0	95-100	80-100	40-95	0-30	---	NP
	25-60	Sand, fine sand, coarse sand.	SP, SM	A-1, A-2, A-3	0	95-100	80-100	40-95	0-20	---	NP
Eldridge:											
EdB	0-10	Loamy sand	SM	A-2, A-4	0	95-100	90-100	60-80	20-45	---	NP
	10-27	Loamy fine sand, fine sand, sand.	SM, SP-SM	A-2	0	95-100	90-100	50-80	10-30	---	NP
	27-60	Stratified silt to very fine sand.	ML, SM, CL-ML	A-4	0	100	90-100	70-100	35-100	<20	NP-5
Enfield:											
EnA, EnB, EnC	0-6	Silt loam	ML	A-4	0	95-100	90-100	80-95	55-90	<35	NP-7
	6-25	Silt loam, very fine sandy loam.	ML	A-4	0	95-100	90-100	80-95	55-90	<35	NP-5
	25-60	Very gravelly sand, gravelly sand.	SP, GP, SP-SM, GP-GM	A-1	10-40	35-70	25-65	10-45	0-10	---	NP
Enosburg:											
Es	0-10	Loamy sand	SM, SP-SM	A-2, A-1	0	95-100	90-100	45-80	10-35	---	NP
	10-26	Sand, coarse sand, loamy fine sand.	SP-SM, SM	A-2	0	95-100	90-100	50-80	10-35	---	NP
	26-60	Silt, very fine sandy loam, silty clay loam.	ML, CL	A-4, A-6	0	100	100	85-100	50-100	<30	NP-20
Gloucester:											
GfB	0-3	Sandy loam	SM	A-1, A-2, A-4	0-20	75-95	65-90	45-85	20-40	---	NP
	3-11	Gravelly sandy loam, gravelly fine sandy loam.	SM.	A-1, A-2, A-4	5-25	70-90	65-80	40-70	20-40	---	NP
	11-60	Gravelly loamy sand, coarse loamy sand.	SM, GM, SP-SM, GP-GM	A-1, A-2	5-15	45-65	35-55	20-40	5-15	---	NP
GhB, GhC	0-3	Very stony sandy loam.	SM	A-1, A-2, A-4	5-15	75-95	65-90	45-85	20-40	---	NP
	3-11	Gravelly sandy loam, gravelly fine sandy loam.	SM	A-1, A-2, A-4	5-25	70-90	65-80	40-70	20-40	---	NP
	11-60	Gravelly loamy sand, loamy coarse sand.	SM, GM, SP-SM, GP-GM	A-1, A-2	5-15	45-65	35-55	20-40	5-15	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Gloucester:											
GxB, GxC, GxD-----	0-3	Extremely stony sandy loam.	SM	A-1, A-2, A-4	15-25	75-95	65-90	45-85	20-40	---	NP
	3-11	Gravelly sandy loam, fine sandy loam.	SM	A-1, A-2, A-4	5-25	70-90	65-80	40-70	20-40	---	NP
	11-60	Gravelly loamy sand, loamy coarse sand.	SM, GM, SP-SM, GP-GM	A-1, A-2	5-15	45-75	35-70	20-40	5-15	---	NP
Hadley:											
Ha, HbA, HbB------	0-12	Very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	95-100	95-100	70-95	<30	NP-9
	12-55	Silt loam, very fine sandy loam, very fine sand.	ML, CL, CL-ML	A-4	0	100	95-100	90-100	60-95	<39	NP-13
	55-66	Silt loam, silt, loamy very fine sand.	ML, CL, CL-ML, SM	A-4	0	100	95-100	75-95	40-85	<30	NP-13
Hinckley:											
HgA, HgB, HgC, HgD, HgE----------	0-5	Loamy sand------	SM, SP-SM	A-1, A-2	0-20	85-95	65-85	30-65	10-25	---	NP
	5-14	Gravelly loamy sand, gravelly loamy coarse sand.	SM, GM, GP-GM, SP-SM	A-1, A-2	0-20	75-95	65-85	20-70	10-35	---	NP
	14-60	Stratified gravelly loamy fine sand to very cobbly coarse sand.	SP, SM, GP	A-1, A-2	0-45	60-75	30-55	25-45	2-35	---	NP
Holyoke:											
HoB, HoC----------	0-4	Very fine sandy loam.	ML, SM, CL-ML	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-5
	4-12	Silt loam, very fine sandy loam.	ML, SM	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-3
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
[1]HrC:											
Holyoke part----	0-4	Very fine sandy loam.	ML, SM, CL-ML	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-5
	4-12	Silt loam, very fine sandy loam.	ML, SM	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-3
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop part.											

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Limerick:											
Lk	0-12	Silt loam	ML	A-4	0	100	100	95-100	80-90	<30	NP
	12-24	Silt loam	ML	A-4	0	100	100	95-100	80-90	<30	NP
	24-60	Silt loam	ML	A-4	0	100	100	95-100	85-90	<25	NP
Ludlow:											
LuB	0-5	Loam	ML, CL-ML	A-4	0-5	80-95	70-90	65-85	55-70	<45	NP-8
	5-24	Loam, silt loam	ML, CL-ML	A-4	0-5	80-95	70-90	65-85	55-70	<45	NP-7
	24-60	Loam, gravelly loam, silt loam.	ML, CL-ML	A-4	0-10	70-90	65-85	60-80	50-65	<35	NP-7
LwB	0-5	Very stony loam	ML, CL-ML	A-4	5-10	80-95	70-90	65-85	55-70	<45	NP-8
	5-24	Loam, silt loam	ML, CL-ML	A-4	0-10	80-95	70-90	65-85	55-70	<45	NP-7
	24-60	Loam, gravelly loam, silt loam.	ML, CL-ML	A-4	5-15	70-90	65-85	60-80	55-65	<35	NP-7
LxB, LxC	0-5	Extremely stony loam.	ML, CL-ML	A-4	10-15	80-95	70-90	65-85	55-70	<45	NP-8
	5-24	Loam, silt loam	ML, CL-ML	A-4	0-10	80-95	70-90	65-85	55-70	<45	NP-7
	24-60	Loam, gravelly loam, silt loam.	ML, CL-ML	A-4	5-15	70-90	65-85	60-80	55-65	<35	NP-7
Meckesville:											
MaB, MaC, MaD	0-8	Loam	ML	A-4	0-5	90-100	85-95	70-85	55-70	---	---
	8-19	Loam, channery silt loam.	ML, CL	A-4, A-6	0-20	60-100	60-95	60-90	55-70	24-39	2-13
	19-60	Loam, channery silt loam, silty clay loam.	ML, CL, GM	A-4, A-2	0-20	45-95	40-90	35-85	30-65	23-30	2-9
MbB, MbC, MbD	0-8	Very stony loam	ML	A-4	5-15	80-100	70-95	65-85	55-80	---	---
	8-19	Loam, channery silt loam.	ML	A-4, A-6	0-20	60-100	60-95	60-90	55-70	24-39	2-13
	19-60	Loam, channery silt loam, silty clay loam.	ML, GM	A-4, A-2	0-20	45-95	40-90	35-85	30-65	23-30	2-9
McB, McC, McD	0-8	Extremely stony loam.	ML	A-4	15-35	80-100	70-95	65-85	55-80	---	---
	8-19	Loam, channery silt loam.	ML, CL	A-4, A-6	0-20	60-100	60-95	60-90	55-70	24-39	2-13
	19-60	Loam, channery silt loam, silty clay loam.	ML, GM	A-4, A-2	0-20	45-95	40-90	35-85	30-65	23-30	2-9
Merrimac:											
MeA, MeB, MeC, MeD	0-7	Sandy loam	SM	A-1, A-2	0	85-95	70-90	45-60	20-35	<20	NP
	7-15	Sandy loam, gravelly fine sandy loam.	SM	A-1, A-2, A-4	0	65-95	55-90	40-75	15-50	<25	NP
	15-26	Gravelly loamy sand, sandy loam.	SP-SM	A-1, A-2	0	65-95	55-90	25-70	10-30	<25	NP
	26-60	Stratified sand and gravel.	SP-SM, GP-GM, SP, GP	A-1, A-2	5-25	55-65	45-60	20-40	0-10	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Montauk:											
MmB	0-7	Fine sandy loam	ML, SM	A-4, A-2	0	90-100	85-95	55-90	30-85	10-25	2-4
	7-22	Fine sandy loam	SM, ML	A-2, A-4	0-5	40-100	85-95	55-90	30-85	<20	NP-4
	22-60	Loamy fine sand, loamy coarse sand, gravelly loamy sand.	SM, SP-SM	A-2, A-1, A-4	5-10	90-100	80-95	30-70	5-40	<15	NP-2
MnB, MnC	0-7	Extremely stony fine sandy loam.	SM, ML	A-1, A-2, A-4	5-25	70-100	55-75	35-70	20-55	<20	NP-4
	7-22	Fine sandy loam	SM, ML	A-2, A-4	0-5	90-100	85-95	55-90	35-85	<20	NP-4
	22-60	Gravelly loamy sand, loamy fine sand, loamy coarse sand.	SM, SP-SM	A-1, A-2, A-4	5-10	90-100	80-95	30-90	5-40	<15	NP-2
Muck, deep:											
Mu	0-60	Sapric material	Pt	A-8	---	---	---	---	---	---	---
Muck, shallow:											
Mx	0-30	Sapric material	Pt	A-8	---	---	---	---	---	---	---
	30-60	Variable	---	---	---	---	---	---	---	---	---
Narragansett:											
NaB, NaC	0-8	Very fine sandy loam.	ML, SM, CL-ML	A-4	0-5	90-100	85-95	75-95	40-65	<35	NP-6
	8-28	Silt loam, very fine sandy loam, loam.	ML, SM	A-4	0-5	90-100	75-95	65-95	40-85	<35	NP-4
	28-60	Gravelly coarse sandy loam, gravelly loamy sand, sandy loam.	SM, SP	A-1, A-2	5-15	55-80	50-70	20-60	2-35	---	NP
NbB, NbC	0-8	Very stony very fine sandy loam.	ML, SM, CL-ML	A-4	5-20	90-100	85-95	75-95	40-65	<35	NP-6
	8-28	Silt loam, very fine sandy loam.	ML, SM	A-4	0-15	90-100	75-85	65-85	40-75	<35	NP-4
	28-60	Gravelly coarse sandy loam, sandy loam, gravelly loamy sand.	SM, SP	A-1, A-2	5-15	55-80	50-70	20-60	2-35	---	NP
NcB, NcC, NcD	0-8	Extremely stony very fine sandy loam.	ML, SM, CL-ML	A-4	25-35	90-100	85-95	75-95	40-65	<35	NP-6
	8-28	Silt loam, very fine sandy loam.	ML, SM	A-4	5-15	90-100	75-85	65-85	40-75	<35	NP-4
	28-60	Gravelly coarse sandy loam, gravelly loamy sand, sandy loam.	SM, SP	A-1, A-2	5-15	55-80	50-70	20-60	2-35	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ninigret:											
Ng	0-10	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-95	40-65	<25	NP-3
	10-31	Fine sandy loam, sandy loam.	SM	A-2, A-4	0	95-100	90-100	65-85	20-50	---	NP
	31-60	Loamy sand, sand.	SP, SM, GM	A-1, A-2,	0-10	60-100	45-100	25-75	0-30	---	NP
Paxton:											
PaB, PaC	0-6	Fine sandy loam	SM, ML	A-2, A-4	0-10	80-95	75-90	60-85	30-65	<30	NP-10
	6-30	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	55-85	25-65	<30	NP-10
	30-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	55-75	20-60	<30	NP-10
PbB, PbC, PbD	0-6	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-20	80-95	75-90	60-85	30-65	<30	<10
	6-30	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	70-90	65-90	55-85	25-65	<30	<10
	30-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	55-75	20-60	<30	<10
PcB, PcC, PcD	0-6	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	10-25	80-90	70-85	60-80	30-65	<30	<10
	6-30	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-20	70-90	65-90	55-85	25-65	<30	<10
	30-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	5-15	70-90	60-85	55-75	20-60	<30	<10
Peat:											
Pe	0-60	Fibric material	Pt	A-8	---	---	---	---	---	---	---
Podunk:											
Po	0-9	Fine sandy loam	SM, ML	A-4	0	100	95-100	60-100	35-75	---	NP
	9-60	Fine sandy loam, sandy loam, sand.	SM, SP-SM	A-2, A-4	0	100	95-100	50-85	15-50	---	NP
Pollux:											
PuA, PuB, PuC	0-6	Fine sandy loam	SM, ML	A-4, A-2	0	95-100	85-100	55-95	30-75	<40	NP-6
	6-34	Sandy loam, fine sandy loam, loam.	SM, ML	A-2, A-4	0	90-100	85-100	55-95	25-65	<40	NP-6
	34-60	Stratified silt to very fine sand.	ML, SM	A-4	0	95-100	85-100	65-100	35-90	<40	NP-10
Raynham:											
Ra	0-7	Silt loam-------	ML	A-4	0	100	95-100	90-100	70-90	---	NP
	7-24	Silt loam-------	ML	A-4	0	100	95-100	90-100	70-90	---	NP
	24-60	Silt loam-------	ML	A-4	0	100	95-100	90-100	70-90	---	NP
Ridgebury:											
Rd	0-6	Sandy loam------	SM, ML	A-2, A-4	0-15	70-100	60-95	45-85	25-65	---	NP
	6-16	Sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	65-95	55-90	40-80	20-60	---	NP
	16-60	Sandy loam, gravelly loam.	SM, ML	A-2, A-4	0-15	65-95	55-90	35-80	20-60	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ridgebury:											
ReA, ReB	0-6	Extremely stony sandy loam.	SM, ML	A-2, A-4	10-30	70-100	60-95	45-85	25-65	---	NP
	6-16	Sandy loam, gravelly loam.	SM, ML	A-2, A-4	10-30	65-95	55-90	40-80	20-60	---	NP
	16-60	Sandy loam, gravelly loam.	SM, ML	A-2, A-4	10-30	65-95	55-90	35-80	20-60	---	NP
Rock outcrop: Rf.											
[1]RHD:											
Rock outcrop part.											
Holyoke part	0-4	Very fine sandy loam.	ML, SM, CL-ML	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-5
	4-12	Silt loam, very fine sandy loam.	ML, SM	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-3
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
[1]RHE:											
Rock outcrop part.											
Holyoke part	0-4	Very fine sandy loam.	ML, SM, CL-ML	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-5
	4-12	Silt loam, loam, very fine sandy loam.	ML, SM	A-4, A-2	0-10	75-95	55-90	45-85	25-75	<25	NP-3
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rumney:											
Ru	0-5	Fine sandy loam	SM, ML	A-2, A-4	0	90-100	80-100	65-100	30-85	---	NP
	5-60	Fine sandy loam, sandy loam, loamy sand.	SM, ML	A-2, A-4, A-1	0	100	90-100	45-85	15-55	---	NP
Saco Variant:											
Sa	0-14	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	70-95	<40	NP-10
	14-30	Silt loam, very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	55-95	<40	NP-10
	30-60	Silt loam, very fine sandy loam, loamy sand.	ML, CL-ML	A-4	0	100	100	95-100	50-95	<25	NP-5
Scantic Variant:											
Sc	0-10	Silt loam	ML, CL	A-4, A-5, A-6, A-7	0	100	100	95-100	80-95	35-50	5-15
	10-24	Silt loam, loam	ML, CL	A-4, A-5, A-6, A-7	0	100	100	85-100	60-90	30-45	5-20
	24-60	Silty clay, silty clay loam, clay.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-45	10-20
Scarboro:											
Se	0-11	Sandy loam	SM	A-2, A-4	0	90-100	80-100	65-95	25-50	---	NP
	11-24	Loamy fine sand, loamy sand, sand.	SM, SP	A-2	0	90-100	80-100	60-95	5-30	---	NP
	24-60	Loamy sand, sand, gravelly loamy fine sand.	SM, SP	A-1, A-2, A-3, A-4	0	85-100	55-100	30-85	3-45	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Scituate:											
SgB	0-7	Fine sandy loam	SM, ML	A-2, A-4	0-5	80-95	70-90	60-90	30-65	---	NP
	7-25	Fine sandy loam, loam, gravelly sandy loam.	SM, ML	A-2, A-4	0-5	80-95	70-90	60-85	30-65	---	NP
	25-60	Loamy sand, gravelly loamy sand.	SM, SP-SM, GM, GP-GM	A-1, A-2	5-30	50-90	40-85	20-70	10-30	---	NP
ShB	0-7	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	10-35	80-95	70-90	60-90	30-65	---	NP
	7-25	Fine sandy loam, loam, gravelly sandy loam.	SM, ML	A-2, A-4	0-5	80-95	70-90	60-85	30-65	---	NP
	25-60	Loamy sand, gravelly loamy sand.	SM, GM, SP-SM, GP-GM	A-1, A-2	5-30	50-90	40-85	20-70	10-30	---	NP
Sudbury:											
SrB	0-10	Fine sandy loam	SM, ML	A-2, A-4	0-5	85-100	60-100	40-90	20-55	<25	NP
	10-18	Sandy loam, fine sandy loam, very fine sandy loam.	SM	A-2, A-4	0-5	85-100	60-100	40-80	20-50	<25	NP
	18-23	Gravelly sand, loamy sand, sandy loam.	SM, SP-SM	A-1, A-2, A-3	0-5	70-100	60-100	30-70	5-35	<25	NP
	23-60	Stratified sand, gravel, and cobblestones.	SP, SP-SM	A-1	10-40	70-75	60-65	30-45	3-10	---	NP
Suncook:											
Su	0-10	Loamy fine sand	SM	A-2	0	95-100	85-100	65-95	15-35	---	---
	10-60	Stratified loamy sand and coarse sand.	SP, SM	A-1, A-2, A-3	0	90-100	85-100	40-95	0-35	---	---
Terrace escarpments:											
Te	0-60	Variable	---	---	---	---	---	---	---	---	---
Unadilla:											
UaB, UaC	0-10	Very fine sandy loam.	ML	A-4	0	100	95-100	90-100	60-90	10-20	2-4
	10-60	Silt loam, very fine sandy loam, loamy very fine sand.	ML	A-4	0	100	95-100	90-100	60-90	10-20	2-4
Urban land:											
Ub.											
[1]UH:											
Urban land part.											
Hadley part	0-12	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	95-100	70-95	<30	NP-9
	12-55	Silt loam, very fine sandy loam, very fine sand.	ML, CL-ML, CL	A-4	0	100	95-100	90-100	60-95	<39	NP-13
	55-66	Silt loam, silt, loamy very fine sand.	ML, CL, CL-ML, SM	A-4	0	100	95-100	75-95	40-85	<30	NP-13

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Urban land:											
[1]UH:											
Winooski part---	0-12	Silt loam-------	ML, SM	A-4	0	100	100	95-100	40-90	<33	NP
	12-66	Silt loam, very fine sandy loam, loamy very fine sand.	ML, SM	A-4	0	100	100	95-100	40-90	<34	NP
[1]UK:											
Urban land part.											
Hinckley part---	0-5	Loamy sand------	SM, SP-SM	A-1, A-2	0-20	85-95	65-85	30-65	10-25	---	NP
	5-14	Gravelly loamy sand, gravelly loamy coarse sand.	SM, GM, SP-SM	A-1, A-2	0-20	75-95	65-85	20-70	10-35	---	NP
	14-60	Stratified gravelly loamy fine sand to very cobbly coarse sand.	SP, SM, GP	A-1, A-2	0-45	60-75	30-55	25-45	2-35	---	NP
Windsor part----	0-7	Loamy sand------	SM	A-2	0	95-100	85-100	35-85	20-35	---	NP
	7-23	Loamy sand, loamy fine sand, sand.	SP-SM, SM	A-2, A-3	0	95-100	85-100	45-95	10-30	---	NP
	23-60	Sand, fine sand	SP-SM, SM	A-2, A-3	0	90-100	75-100	40-95	5-20	---	NP
[1]UW:											
Urban land part.											
Wethersfield part----------	0-14	Fine sandy loam	ML, CL-ML	A-4	0-5	85-95	80-95	65-85	55-70	<45	NP-8
	14-26	Loam, fine sandy loam, gravelly loam.	ML, CL-ML	A-4	0-5	85-95	80-95	65-85	55-70	<45	NP-7
	26-50	Loam, gravelly loam, gravelly fine sandy loam.	SM, ML, CL-ML	A-2, A-4	0-10	75-90	70-90	50-80	30-65	<35	NP-7
Paxton part-----	0-6	Fine sandy loam	SM, ML	A-2, A-4	0-10	80-95	75-90	60-85	30-65	<30	NP-10
	6-30	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	65-90	55-85	25-65	<30	NP-10
	30-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SM-SC	A-2, A-4	0-15	70-90	60-85	55-75	20-60	<30	NP-10
Wareham:											
Wa----------	0-13	Loamy sand------	SM, SP-SM	A-2, A-3	0	90-100	80-100	65-95	5-35	---	NP
	13-60	Loamy coarse sand, sand, loamy sand.	SP, SM	A-2, A-3	0	90-100	80-100	65-95	5-35	---	NP
Wethersfield:											
WeB, WeC----------	0-14	Fine sandy loam	ML, CL-ML	A-4	0-5	85-95	80-95	65-85	55-70	<45	NP-8
	14-26	Fine sandy loam, gravelly loam.	ML, CL-ML	A-4	0-5	85-95	80-95	65-85	55-70	<45	NP-7
	26-60	Loam, gravelly loam, gravelly fine sandy loam.	SM, ML, CL-ML	A-2, A-4	0-10	75-90	70-90	50-80	30-65	<35	NP-7
WfB, WfC, WfD-----	0-14	Very stony fine sandy loam.	ML, CL-ML	A-4	5-10	85-95	80-95	65-85	55-70	<45	NP-8
	14-26	Fine sandy loam, gravelly loam.	ML, CL-ML	A-4	5-5	85-95	80-95	65-85	55-70	<45	NP-7
	26-50	Loam, gravelly loam, gravelly fine sandy loam.	SM, ML, CL-ML	A-2, A-4	0-10	75-90	70-90	50-80	30-65	<35	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Wethersfield:											
WgB, WgC, WgD-----	0-14	Extremely stony fine sandy loam.	ML, CL-ML	A-4	10-15	85-95	80-95	65-85	55-70	<45	NP-8
	14-26	Fine sandy loam, gravelly loam.	ML, CL-ML	A-4	0-5	85-95	80-95	65-85	55-70	<45	NP-7
	26-50	Loam, gravelly loam, gravelly fine sandy loam.	SM, ML, CL-ML	A-2, A-4	0-10	75-90	70-90	50-80	30-65	<35	NP-7
Whitman:											
WhA----------	0-9	Extremely stony loam.	SM, ML, OL	A-2, A-4	5-35	85-95	70-90	55-90	25-75	---	NP
	9-22	Sandy loam, fine sandy loam, gravelly loam.	SM, ML	A-2, A-4	5-25	70-95	60-90	45-80	20-65	---	NP
	22-60	Sandy loam, fine sandy loam, gravelly loam.	SM, ML	A-1, A-2, A-4	5-20	60-95	50-95	30-90	15-70	---	NP
Wilbraham:											
WmA, WmB----------	0-7	Extremely stony silt loam.	ML, CL-ML	A-4, A-5	5-15	80-95	70-95	65-85	55-70	<45	NP-8
	7-16	Loam, silt loam	ML, CL-ML	A-4, A-5	0-10	80-95	70-95	65-85	55-70	<45	NP-7
	16-60	Loam, gravelly loam, silty clay loam.	ML, CL-ML	A-4	0-10	70-90	65-85	60-80	55-65	<35	NP-7
Windsor:											
WnA, WnB, WnC, WnD, WnE----------	0-7	Loamy sand------	SM	A-2	0	95-100	85-100	35-85	20-35	---	NP
	7-23	Loamy sand, loamy fine sand, sand.	SP-SM, SM	A-2, A-3	0	95-100	85-100	45-95	10-30	---	NP
	23-60	Sand, fine sand	SP-SM, SM	A-2, A-3	0	90-100	75-100	40-95	5-20	---	NP
Winooski:											
Wo----------	0-12	Silt loam-------	ML, SM	A-4	0	100	100	95-100	40-90	<33	NP
	12-66	Silt loam, very fine sandy loam, loamy very fine sand.	ML, SM	A-4	0	100	100	95-100	40-90	<34	NP
Woodbridge:											
WrA, WrB----------	0-5	Fine sandy loam	SM, ML	A-2, A-4	0-5	85-95	70-90	60-85	30-65	<30	NP-10
	5-26	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SC	A-2, A-4	5-10	75-95	65-90	55-85	25-60	<30	NP-10
	26-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SC	A-2, A-4	5-15	70-90	60-90	50-85	25-60	<30	NP-10
WsB, WsC----------	0-5	Very stony fine sandy loam.	SM, ML	A-2, A-4	5-10	85-95	70-90	60-85	30-65	<30	NP-10
	5-26	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SC	A-2, A-4	5-10	75-95	65-90	55-85	25-60	<30	NP-10
	26-60	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SC	A-2, A-4	5-15	70-90	60-90	50-85	25-60	<30	NP-10
WtB, WtC, WtD-----	0-5	Extremely stony fine sandy loam.	SM, ML	A-2, A-4	10-15	85-95	70-90	60-85	30-65	<30	NP-10
	5-26	Fine sandy loam, loam, gravelly fine sandy loam.	SM, ML, SC	A-2, A-4	5-10	75-95	65-90	55-85	25-60	<30	NP-10
	26-50	Fine sandy loam, loam, gravelly sandy loam.	SM, ML, SC	A-2, A-4	5-15	70-90	60-90	50-85	25-60	<30	NP-10

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[Dashes indicate data were not available. The symbol < means less than; > means greater than. The erosion tolerance factor (T) is for the entire profile. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Agawam:									
AgA, AgB, AgC-----	0-10	2.0-6.0	0.13-0.18	4.5-5.5	Low-------	Low-------	High------	.28	3
	10-15	2.0-6.0	0.13-0.20	4.5-5.5	Low-------	Low-------	High------	.43	
	15-25	2.0-20	0.13-0.18	4.5-5.5	Low-------	Low-------	High------	.43	
	25-60	6.0-20	0.02-0.13	4.5-5.5	Low-------	Low-------	High------	.17	
Amostown:									
AmB----------	0-10	2.0-6.0	0.13-0.18	4.5-5.5	Low-------	Moderate	Moderate	0.28	3
	10-32	2.0-6.0	0.10-0.15	4.5-5.5	Low-------	Moderate	Moderate	0.28	
	32-60	0.06-2.0	0.17-0.26	5.1-6.5	Low-------	Moderate	Moderate	0.49	
Belgrade:									
BaB----------	0-12	0.6-2.0	0.17-0.30	5.1-6.5	Low-------	Moderate	Moderate	0.49	3
	12-28	0.6-2.0	0.15-0.26	5.1-6.0	Low-------	Moderate	Moderate	0.64	
	28-60	0.2-2.0	0.15-0.26	5.1-6.5	Low-------	Moderate	Moderate	0.64	
Broadbrook:									
BgB, BgC----------	0-5	0.6-2.0	0.12-0.28	4.5-6.0	Low-------	Low-------	Moderate	0.43	3
	5-20	0.6-2.0	0.13-0.26	4.5-6.0	Low-------	Low-------	Moderate	0.43	
	20-60	<0.2	0.08-0.15	4.5-6.0	Low-------	Low-------	Moderate	0.17	
BhB, BhC, BhD-----	0-5	0.6-2.0	0.10-0.24	4.5-6.0	Low-------	Low-------	Moderate	0.43	3
	5-20	0.6-2.0	0.13-0.26	4.5-6.0	Low-------	Low-------	Moderate	0.43	
	20-60	<0.2	0.08-0.15	4.5-6.0	Low-------	Low-------	Moderate	0.17	
BkB, BkC----------	0-5	0.6-2.0	0.05-0.24	4.5-6.0	Low-------	Low-------	Moderate	0.43	3
	5-20	0.6-2.0	0.13-0.26	4.5-6.0	Low-------	Low-------	Moderate	0.43	
	20-60	<0.2	0.08-0.15	4.5-6.0	Low-------	Low-------	Moderate	0.17	
Brookfield:									
BoB, BoC, BoD-----	0-5	0.6-6.0	0.09-0.18	4.5-5.5	Low-------	Low-------	High------	0.17	3
	5-30	0.6-6.0	0.06-0.16	4.5-5.5	Low-------	Low-------	High------	0.43	
	30-60	0.6-6.0	0.05-0.14	4.5-5.5	Low-------	Low-------	High------	0.43	
[1]BrC:									
Brookfield part-	0-5	0.6-6.0	0.09-0.18	4.5-5.5	Low-------	Low-------	High------	0.17	3
	5-30	0.6-6.0	0.06-0.16	4.5-5.5	Low-------	Low-------	High------	0.43	
	30-60	0.6-6.0	0.05-0.14	4.5-5.5	Low-------	Low-------	High------	0.43	
Rock outcrop part.									
Brimfield part--	0-2	0.6-6.0	0.13-0.18	4.5-5.5	Low-------	Low-------	High------	0.20	2
	2-13	0.6-6.0	0.10-0.16	4.5-5.5	Low-------	Low-------	High------	0.43	
	13	---	---	---	----------	----------	----------	---	
[1]BrD:									
Brookfield part-	0-5	0.6-6.0	0.09-0.18	4.5-5.5	Low-------	Low-------	High------	0.17	3
	5-30	0.6-6.0	0.06-0.16	4.5-5.5	Low-------	Low-------	High------	0.43	
	30-60	0.6-6.0	0.05-0.14	4.5-5.5	Low-------	Low-------	High------	0.43	
Rock outcrop part.									
Brimfield part--	0-2	0.6-6.0	0.13-0.18	4.5-5.5	Low-------	Low-------	High------	0.20	2
	2-13	0.6-6.0	0.10-0.16	4.5-5.5	Low-------	Low-------	High------	0.43	
	13	---	---	---	----------	----------	----------	---	
Buxton Variant:									
BuB----------	0-9	0.2-2.0	0.17-0.26	4.5-6.5	Low-------	High------	Moderate	0.28	3
	9-24	0.2-2.0	0.12-0.26	4.5-5.5	Low-------	High------	Moderate	0.49	
	24-60	0.06-0.2	0.11-0.18	5.1-6.0	Moderate	High------	Moderate	0.49	
Carver:									
CaA, CaB, CaC-----	0-11	>20	0.05-0.11	3.6-5.5	Low-------	Low-------	High------	0.17	5
	11-16	>20	0.01-0.11	3.6-5.5	Low-------	Low-------	High------	0.17	
	16-60	>20	0.01-0.06	3.6-5.5	Low-------	Low-------	High------	0.17	
Charlton:									
CkB, CkC----------	0-7	0.6-6.0	0.13-0.18	4.5-5.5	Low-------	Low-------	High------	0.20	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low-------	Low-------	High------	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low-------	Low-------	High------	0.43	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Charlton:									
CmB, CmC, CmD	0-7	0.6-6.0	0.10-0.15	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
CnB, CnC, CnD	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
[1]COE:									
Charlton part	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
Narragansett part	0-8	0.6-2.0	0.10-0.16	4.5-5.5	Low	Low	Moderate	0.32	3
	8-28	0.6-2.0	0.12-0.24	4.5-5.5	Low	Low	Moderate	0.43	
	28-60	2.0-20.0	0.08-0.16	4.5-5.5	Low	Low	Moderate	0.28	
[1]CpB:									
Charlton part	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
Hollis part	0-7	0.6-6.0	0.10-0.18	4.5-5.5	Low	Low	High	0.20	2
	7-14	0.6-6.0	0.08-0.18	4.5-5.5	Low	Low	High	0.43	
	14	---	---	---	---	---	---	---	
Rock outcrop part.									
[1]CpC:									
Charlton part	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
Hollis part	0-7	0.6-6.0	0.10-0.18	4.5-5.5	Low	Low	High	0.20	2
	7-14	0.6-6.0	0.08-0.18	4.5-5.5	Low	Low	High	0.43	
	14	---	---	---	---	---	---	---	
Rock outcrop part.									
[1]CrC:									
Charlton part	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
Rock outcrop part.									
Hollis part	0-7	0.6-6.0	0.10-0.18	4.5-5.5	Low	Low	High	0.20	2
	7-14	0.6-6.0	0.08-0.18	4.5-5.5	Low	Low	High	0.43	
	14	---	---	---	---	---	---	---	
[1]CrD:									
Charlton part	0-7	0.6-6.0	0.05-0.12	4.5-5.5	Low	Low	High	0.17	3
	7-28	0.6-6.0	0.05-0.22	4.5-5.5	Low	Low	High	0.43	
	28-60	0.6-6.0	0.05-0.18	4.5-5.5	Low	Low	High	0.43	
Rock outcrop part.									
Hollis part	0-7	0.6-6.0	0.10-0.18	4.5-5.5	Low	Low	High	0.20	2
	7-14	0.6-6.0	0.08-0.18	4.5-5.5	Low	Low	High	0.43	
	14	---	---	---	---	---	---	---	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Deerfield:									
De	0-10	2.0-20	0.07-0.15	4.5-6.0	Low	Low	Moderate	0.17	5
	10-25	6.0-20.0	0.01-0.13	4.5-6.0	Low	Low	Moderate	0.17	
	25-60	>20.0	0.02-0.08	4.5-6.0	Low	Low	Moderate	0.15	
Eldridge:									
EdB	0-10	6.0-20	0.07-0.16	5.1-6.5	Low	Moderate	Moderate	0.32	3
	10-27	6.0-20	0.04-0.11	5.1-6.5	Low	Moderate	Moderate	0.32	
	27-60	0.2-0.6	0.18-0.30	5.1-7.3	Low	Moderate	Low	0.43	
Enfield:									
EnA, EnB, EnC	0-6	0.6-2.0	0.17-0.26	4.5-6.0	Low	Low	Moderate	0.49	3
	6-25	0.6-2.0	0.14-0.26	4.5-5.5	Low	Low	Moderate	0.64	
	25-60	>20	0.01-0.06	4.5-5.5	Low	Low	Moderate	0.17	
Enosburg:									
Es	0-10	6.0-20	0.07-0.13	4.5-6.5	Low	High	Moderate	0.32	3
	10-26	6.0-20	0.04-0.08	4.5-6.5	Low	High	Moderate	0.32	
	26-60	0.2-0.6	0.18-0.30	6.1-7.3	Low	High	Low	0.43	
Gloucester:									
GfB	0-3	6.0-20	0.10-0.16	4.5-5.5	Low	Low	High	0.17	3
	3-11	6.0-20	0.10-0.15	4.5-5.5	Low	Low	High	0.17	
	11-60	6.0-20	0.01-0.10	5.1-5.5	Low	Low	High	---	
GhB, GhC	0-3	6.0-20	0.07-0.13	4.5-5.5	Low	Low	High	0.17	3
	3-11	6.0-20	0.10-0.15	4.5-5.5	Low	Low	High	0.17	
	11-60	6.0-20	0.01-0.10	4.5-5.5	Low	Low	High	0.17	
GxB, GxC, GxD	0-3	6.0-20	0.05-0.10	4.5-5.5	Low	Low	High	0.17	3
	3-11	6.0-20	0.10-0.15	4.5-5.5	Low	Low	High	0.17	
	11-60	6.0-20	0.01-0.10	4.5-5.5	Low	Low	High	0.17	
Hadley:									
Ha, HbA, HbB	0-12	0.6-2.0	0.15-0.25	4.5-7.3	Low	Low	Moderate	0.49	3
	12-55	0.6-6.0	0.17-0.26	4.5-7.3	Low	Low	Moderate	0.49	
	55-66	0.6-6.0	0.10-0.20	5.6-7.3	Low	Low	Moderate	0.49	
Hinckley:									
HgA, HgB, HgC, HgD, HgE	0-5	6.0-20	0.07-0.13	3.6-6.0	Low	Low	High	0.17	3
	5-14	6.0-20	0.01-0.11	3.6-6.0	Low	Low	High	0.17	
	14-60	>20	0.01-0.06	3.6-6.0	Low	Low	High	0.15	
Holyoke:									
HoB, HoC	0-4	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	0.24	2
	4-12	0.6-2.0	0.11-0.22	4.5-5.5	Low	Low	High	0.43	
	12	---	---	---	---	---	---	---	
[1]HrC:									
Holyoke part	0-4	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	0.24	2
	4-12	0.6-2.0	0.11-0.22	4.5-5.5	Low	Low	High	0.43	
	12	---	---	---	---	---	---	---	
Rock outcrop part.									
Limerick:									
Lk	0-12	0.6-2.0	0.18-0.25	5.6-7.3	Low	High	Low	0.20	3
	12-24	0.6-2.0	0.18-0.25	5.6-7.3	Low	High	Low	0.20	
	24-60	0.6-2.0	0.18-0.25	5.6-7.3	Low	High	Low	0.20	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Ludlow:									
LuB	0-5	0.6-2.0	0.11-0.28	4.5-5.5	Low	Low	High	0.24	3
	5-24	0.6-2.0	0.09-0.24	4.5-5.5	Low	Low	High	0.43	
	24-60	<0.2	0.08-0.12	5.1-6.0	Low	Low	High	0.17	
LwB	0-5	0.6-2.0	0.11-0.28	4.5-5.5	Low	Low	High	0.17	3
	5-24	0.6-2.0	0.09-0.24	5.1-5.5	Low	Low	High	0.43	
	24-60	<0.2	0.08-0.12	5.1-6.0	Low	Low	High	0.17	
LxB, LxC	0-5	0.6-2.0	0.11-0.28	4.5-5.5	Low	Low	High	0.17	---
	5-24	0.6-2.0	0.09-0.24	5.1-5.5	Low	Low	High	0.43	
	24-60	<0.2	0.08-0.12	5.1-6.0	Low	Low	High	0.17	
Meckesville:									
MaB, MaC, MaD	0-8	0.6-2.0	0.14-0.18	4.6-5.5	Low	Low	High	0.32	4
	8-19	0.6-2.0	0.12-0.16	4.6-5.5	Low	Low	High	0.28	
	19-60	0.2-0.6	0.08-0.12	4.6-5.5	Low	Moderate	High	0.28	
MbB, MbC, MbD	0-8	0.6-2.0	0.12-0.16	3.6-5.0	Low	Low	High	0.32	4
	8-19	0.6-2.0	0.10-0.14	3.6-5.0	Low	Low	High	0.28	
	19-60	0.2-0.6	0.08-0.12	3.6-5.0	Low	Moderate	High	0.28	
McB, McC, McD	0-8	0.6-2.0	0.10-0.14	3.6-5.0	Low	Low	High	0.32	4
	8-19	0.6-2.0	0.10-0.14	3.6-5.0	Low	Low	High	0.28	
	19-60	0.2-0.6	0.08-0.12	3.6-5.0	Low	Moderate	High	0.28	
Merrimac:									
MeA, MeB, MeC, MeD	0-7	2.0-6.0	0.12-0.18	3.6-5.5	Low	Low	High	0.17	3
	7-15	2.0-6.0	0.10-0.18	3.6-5.5	Low	Low	High	0.24	
	15-26	6.0-20.0	0.07-0.14	3.6-5.5	Low	Low	High	0.17	
	26-60	6.0-20.0	0.01-0.08	3.6-5.5	Low	Low	High	0.17	
Montauk:									
MmB	0-7	0.6-2.0	0.16-0.20	3.6-5.5	Low	Low	High	0.43	3
	7-22	0.6-6.0	0.10-0.16	3.6-5.5	Low	Low	High	0.24	
	22-60	0.06-0.6	0.02-0.08	3.6-5.5	Low	Low	High	0.20	
MnB, MnC	0-7	0.6-6.0	0.11-0.15	3.6-5.5	Low	Low	High	0.28	3
	7-22	0.6-6.0	0.10-0.16	3.6-5.5	Low	Low	High	0.28	
	22-60	0.06-0.6	0.02-0.16	3.6-5.5	Low	Low	High	0.24	
Muck,deep:									
Mu	0-60	0.6-20	0.18-0.30	3.6-6.5	Low	High	High	---	---
Muck,shallow:									
Mx	0-30	0.6-20	0.18-0.30	3.6-6.5	Low	High	High	---	---
	30-60	0.6-20	0.02-0.18	4.5-6.5	Low	High	High	---	
Narragansett:									
NaB, NaC	0-8	0.6-2.0	0.14-0.20	4.5-5.5	Low	Low	Moderate	0.32	3
	8-28	0.6-2.0	0.17-0.24	4.5-5.5	Low	Low	Moderate	0.43	
	28-50	2.0-20.0	0.08-0.16	4.5-5.5	Low	Low	Moderate	0.28	
NbB, NbC	0-8	0.6-2.0	0.12-0.18	4.5-5.5	Low	Low	Moderate	0.32	3
	8-28	0.6-2.0	0.17-0.24	4.5-5.5	Low	Low	Moderate	0.43	
	28-60	2.0-20	0.08-0.16	4.5-5.5	Low	Low	Moderate	0.28	
NcB, NcC, NcD	0-8	0.6-2.0	0.10-0.16	4.5-5.5	Low	Low	Moderate	0.32	3
	8-28	0.6-2.0	0.17-0.24	4.5-5.5	Low	Low	Moderate	0.43	
	28-60	2.0-20	0.08-0.16	4.5-5.5	Low	Low	Moderate	0.28	
Ninigret:									
Ng	0-10	2.0-6.0	0.13-0.20	4.5-5.5	Low	Low	High	0.28	3
	10-31	2.0-6.0	0.10-0.18	4.5-5.5	Low	Low	High	0.43	
	31-60	6.0-20	0.02-0.13	4.5-5.5	Low	Low	High	0.17	
Paxton:									
PaB, PaC	0-6	0.60-6.0	0.13-0.20	4.5-5.5	Low	Low	Moderate	0.24	3
	6-30	0.60-6.0	0.10-0.18	5.1-6.5	Low	Low	Moderate	0.43	
	30-60	0.06-0.6	0.08-0.12	5.1-6.5	Low	Low	Moderate	0.17	
PbB, PbC, PbD	0-6	0.6-6.0	0.10-0.18	4.5-5.5	Low	Low	Moderate	0.24	3
	6-30	0.6-6.0	0.10-0.18	5.1-6.5	Low	Low	Moderate	0.43	
	30-60	0.06-0.6	0.08-0.12	5.1-6.5	Low	Low	Moderate	0.17	
PcB, PcC, PcD	0-6	0.60-6.0	0.05-0.15	4.5-5.5	Low	Low	Moderate	0.24	3
	6-30	0.60-6.0	0.10-0.18	5.1-6.5	Low	Low	Moderate	0.43	
	30-60	0.06-0.6	0.08-0.12	5.1-6.5	Low	Low	Moderate	0.17	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Peat:									
Pe	0-60	6.0-20	0.18-0.30	3.6-6.5	Low	High	High	---	---
Podunk:									
Po	0-9	0.6-6.0	0.13-0.18	4.5-5.5	Low	Moderate	Moderate	---	---
	9-60	2.0-6.0	0.02-0.18	4.5-5.5	Low	Moderate	Moderate	---	
Pollux:									
PuA, PuB, PuC	0-6	2.0-6.0	0.13-0.18	4.5-7.3	Low	Low	High	0.28	3
	6-34	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	High	0.28	
	34-60	0.06-0.6	0.17-0.26	4.5-5.5	Low	Low	High	0.49	
Raynham:									
Ra	0-7	0.6-2.0	0.17-0.30	5.1-6.0	Low	High	Low	0.49	3
	7-24	0.2-2.0	0.14-0.26	5.1-6.0	Low	High	Low	0.49	
	24-60	0.06-0.2	0.14-0.26	5.6-7.3	Low	High	Low	0.49	
Ridgebury:									
Rd	0-6	0.6-6.0	0.10-0.16	4.5-5.5	Low	High	High	0.24	3
	6-16	0.6-6.0	0.10-0.18	4.5-5.5	Low	High	High	0.24	
	16-60	<.6	0.03-0.05	5.1-6.0	Low	High	High	0.24	
ReA, ReB	0-6	0.6-6.0	0.06-0.12	4.5-5.5	Low	High	High	0.24	---
	6-16	0.6-6.0	0.10-0.18	4.5-5.5	Low	High	High	0.24	
	16-60	<.6	0.03-0.05	5.1-6.0	Low	High	High	0.24	
Rock outcrop:									
Rf.									
[1]RHD:									
Rock outcrop part.									
Holyoke part	0-4	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	0.24	2
	4-12	0.6-2.0	0.11-0.22	4.5-5.5	Low	Low	High	0.43	
	12	---	---	---	---	---	---	---	
[1]RHE:									
Rock outcrop part.									
Holyoke part	0-4	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	0.24	2
	4-12	0.6-2.0	0.11-0.22	4.5-5.5	Low	Low	High	0.43	
	12	---	---	---	---	---	---	---	
Rumney:									
Ru	0-5	2.0-6.0	0.15-0.20	4.5-5.5	Low	High	High	---	---
	5-60	2.0-6.0	0.07-0.18	4.5-5.5	Low	High	High	---	
Saco Variant:									
Sa	0-14	0.6-2.0	0.17-0.30	4.5-6.5	Low	Low	Moderate	0.64	---
	14-30	0.6-2.0	0.15-0.24	4.5-6.5	Low	Low	Moderate	0.64	
	30-60	0.6-2.0	0.10-0.24	4.5-7.3	Low	Low	Low	0.64	
Scantic Variant:									
Sc	0-10	0.2-2.0	0.17-0.26	5.1-7.3	Low	High	High	0.28	3
	10-24	0.2-2.0	0.12-0.26	5.1-6.5	Low	High	High	0.49	
	24-60	0.06-0.2	0.11-0.18	5.1-7.3	Moderate	High	High	0.49	
Scarboro:									
Se	0-11	2.0-6.0	0.10-0.18	4.5-5.5	Low	Moderate	High	---	---
	11-24	>6.0	0.02-0.13	4.5-5.5	Low	Moderate	High	---	
	24-60	>6.0	0.02-0.13	4.5-5.5	Low	Moderate	High	---	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Scituate:									
SgB	0-7	2.0-6.0	0.16-0.20	4.0-6.0	Low	Moderate	High	0.24	3
	7-25	2.0-6.0	0.10-0.16	4.0-6.0	Low	Moderate	High	0.24	
	25-60	<0.6	0.02-0.08	4.0-6.0	Low	Moderate	High	0.24	
ShB	0-7	2.0-6.0	0.11-0.15	4.0-6.0	Low	Moderate	High	0.24	---
	7-25	2.0-6.0	0.10-0.16	4.0-6.0	Low	Moderate	High	0.24	
	25-60	<0.6	0.02-0.08	4.0-6.0	Low	Moderate	High	0.24	
Sudbury:									
SrB	0-10	2.0-6.0	0.12-0.18	3.6-6.0	Low	Low	Moderate	0.17	3
	10-18	2.0-6.0	0.15-0.18	3.6-5.5	Low	Low	Moderate	0.17	
	18-23	2.0-20	0.02-0.15	3.6-5.5	Low	Low	High	0.17	
	23-60	6.0-20	0.01-0.06	3.6-5.5	Low	Low	High	0.17	
Suncook:									
Su	0-10	>6.0	0.07-0.15	4.5-5.5	Low	Low	High	---	---
	10-60	>6.0	0.01-0.13	4.5-5.5	Low	Low	High	---	
Terrace escarpments:									
Te	0-60	>20	0.04-0.18	4.5-6.5	Low	Low	High	0.24	---
Unadilla:									
UaB, UaC	0-10	0.6-2.0	0.18-0.21	4.5-6.0	Low	Low	Moderate	0.49	3
	10-60	0.6-2.0	0.17-0.20	4.5-5.5	Low	Low	Moderate	0.64	
Urban land:									
Ub.									
[1]UH:									
Urban land part.									
Hadley part	0-12	0.6-2.0	0.15-0.25	4.5-7.3	Low	Low	Moderate	0.49	3
	12-55	0.6-6.0	0.17-0.26	4.5-7.8	Low	Low	Moderate	0.49	
	55-66	0.6-6.0	0.10-0.20	5.6-7.8	Low	Low	Moderate	0.49	
Winooski part	0-12	0.6-2.0	0.17-0.25	5.1-6.5	Low	Moderate	Moderate	---	---
	12-66	0.6-2.0	0.13-0.26	5.1-7.0	Low	Moderate	Moderate	---	
[1]UK:									
Urban land part.									
Hinckley part	0-5	6.0-20	0.07-0.13	3.6-6.0	Low	Low	High	0.17	3
	5-14	6.0-20	0.01-0.11	3.6-6.0	Low	Low	High	0.17	
	14-60	>20	0.01-0.06	3.6-6.0	Low	Low	High	0.15	
Windsor part	0-7	6.0->20	0.08-0.12	4.5-6.0	Low	Low	High	0.17	5
	7-23	6.0->20	0.02-0.12	4.5-6.0	Low	Low	High	0.17	
	23-60	6.0->20	0.01-0.08	4.5-6.5	Low	Low	High	0.17	
[1]UW:									
Urban land part.									
Wethersfield part	0-14	0.6-2.0	0.15-0.22	4.5-5.5	Low	Low	High	0.24	3
	14-26	0.6-2.0	0.13-0.22	4.5-5.5	Low	Low	High	0.43	
	26-60	<0.2	0.10-0.18	5.0-6.0	Low	Low	High	0.17	
Paxton part	0-6	0.60-6.0	0.13-0.20	4.5-5.5	Low	Low	Moderate	0.24	3
	6-30	0.60-6.0	0.10-0.18	5.1-6.5	Low	Low	Moderate	0.43	
	30-60	0.06-0.6	0.10-0.18	5.1-6.5	Low	Low	Moderate	0.17	
Wareham:									
Wa	0-13	6.0-20	0.07-0.15	4.5-6.0	Low	Moderate	High	0.17	5
	13-60	6.0-20	0.01-0.13	4.5-6.0	Low	Moderate	High	0.17	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion		Erosion factors	
						Uncoated steel	Concrete	K	T
	In	In/hr	In/in	pH					
Wethersfield:									
WeB, WeC----------	0-14	0.6-2.0	0.15-0.22	4.5-5.5	Low-------	Low-------	High------	0.24	3
	14-26	0.6-2.0	0.13-0.22	4.5-5.5	Low-------	Low-------	High------	0.43	
	26-60	<0.2	0.08-0.12	5.0-6.0	Low-------	Low-------	High------	0.17	
WfB, WfC, WfD-----	0-14	0.6-2.0	0.11-0.20	4.5-5.5	Low-------	Low-------	High------	0.17	3
	14-26	0.6-2.0	0.13-0.22	4.5-5.5	Low-------	Low-------	High------	0.43	
	26-60	<0.2	0.08-0.12	5.0-6.0	Low-------	Low-------	High------	0.17	
WgB, WgC, WgD-----	0-14	0.6-2.0	0.10-0.16	4.5-5.5	Low-------	Low-------	High------	0.15	3
	14-26	0.6-2.0	0.13-0.22	4.5-5.5	Low-------	Low-------	High------	0.43	
	26-60	<0.2	0.08-0.12	4.5-5.5	Low-------	Low-------	High------	0.17	
Whitman:									
WhA----------	0-9	0.6-6.0	0.11-0.17	4.5-6.0	Low-------	High------	High------	0.24	3
	9-22	0.6-6.0	0.08-0.20	4.5-6.0	Low-------	High------	High------	0.24	
	22-60	<.6	0.08-0.15	4.5-6.0	Low-------	High------	High------	0.24	
Wilbraham:									
wmA, wmB----------	0-7	0.6-2.0	0.15-0.22	4.5-5.5	Low-------	Low-------	High------	0.17	3
	7-16	0.6-2.0	0.10-0.26	4.5-5.5	Low-------	Low-------	High------	0.43	
	16-60	<0.2	0.08-0.12	5.1-6.0	Low-------	Low-------	High------	0.17	
Windsor:									
WnA, WnB, WnC, WnD, WnE----------	0-7	6.0->20	0.08-0.12	4.5-6.0	Low-------	Low-------	High------	0.17	5
	7-23	6.0->20	0.02-0.12	4.5-5.5	Low-------	Low-------	High------	0.17	
	23-60	6.0->20	0.02-0.12	4.5-5.5	Low-------	Low-------	High------	0.17	
Winooski:									
Wo----------	0-12	0.6-2.0	0.17-0.25	5.1-6.5	Low-------	Moderate	Moderate	---	---
	12-66	0.6-2.0	0.13-0.23	5.1-7.3	Low-------	Moderate	Moderate	---	
Woodbridge:									
WrA, WrB----------	0-5	0.60-6.0	0.13-0.18	5.1-6.0	Low-------	Moderate	Moderate	0.24	3
	5-26	0.60-6.0	0.08-0.18	5.1-6.0	Low-------	Moderate	Moderate	0.43	
	26-60	0.06-0.6	0.05-0.12	5.1-6.0	Low-------	Moderate	Moderate	0.17	
WsB, WsC----------	0-5	0.6-6.0	0.11-0.15	5.1-6.0	Low-------	Moderate	Moderate	0.17	3
	5-26	0.6-6.0	0.08-0.18	5.1-6.0	Low-------	Moderate	Moderate	0.43	
	26-60	0.06-0.6	0.05-0.12	5.1-6.0	Low-------	Moderate	Moderate	0.17	
WtB, WtC, WtD-----	0-5	0.6-6.0	0.08-0.12	5.1-6.0	Low-------	Moderate	Moderate	0.15	3
	5-26	0.6-6.0	0.08-0.18	5.1-6.0	Low-------	Moderate	Moderate	0.43	
	26-60	0.06-0.6	0.05-0.12	5.1-6.0	Low-------	Moderate	Moderate	0.17	

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 16.--SOIL AND WATER FEATURES

[Absence of an entry indicates the feature is not a concern. See text for descriptions of symbols and such terms as "rare," "brief," and "perched." The symbol < means less than; > means greater than]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
Agawam: AgA, AgB, AgC	B	None	---	---	>6.0	---	---	>72	---	Moderate.
Amostown: AmB	C	None	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	Moderate.
Belgrade: BaB	B	None	---	---	1.5-3.5	Apparent	Nov-Apr	>60	---	High.
Broadbrook: BgB, BgC, BhB, BhC, BhD, BkB, BkC	C	None	---	---	1.5-2.5	Perched	Nov-Apr	>60	---	Moderate.
Brookfield: BoB, BoC, BoD	B	None	---	---	>6.0	---	---	>60	---	Low.
[1]BrC:										
Brookfield part	B	None	---	---	>6.0	---	---	>60	---	Low.
Rock outcrop part.										
Brimfield part	C/D	None	---	---	>6.0	---	---	8-20	Hard	Moderate.
[1]BrD:										
Brookfield part	B	None	---	---	>6.0	---	---	>60	---	Low.
Rock outcrop part.										
Brimfield part	C/D	None	---	---	>6.0	---	---	8-20	Hard	Moderate.
Buxton Variant: BuB	C	None	---	---	1.5-3.0	Perched	Nov-May	>60	---	High.
Carver: CaA, CaB, CaC	A	None	---	---	>6.0	---	---	>60	---	Low.
Charlton: CkB, CkC, CmB, CmC, CmD, CnB, CnC, CnD	B	None	---	---	>6.0	---	---	>60	---	Low.
[1]COE:										
Charlton part	B	None	---	---	>6.0	---	---	>60	---	Low.
Narragansett part	B	None	---	---	>6.0	---	---	>60	---	Moderate.
[1]CpB:										
Charlton part	B	None	---	---	>6.0	---	---	>60	---	Low.
Hollis part	C/D	None	---	---	>6.0	---	---	10-20	Hard	Moderate.
Rock outcrop part.										
[1]CpC:										
Charlton part	B	None	---	---	>6.0	---	---	>60	---	Low.
Hollis part	C/D	None	---	---	>6.0	---	---	10-20	Hard	Moderate.
Rock outcrop part.										
[1]CrC:										
Charlton part	B	None	---	---	>6.0	---	---	>60	---	Low.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
Charlton:										
[1]CrC:										
Rock outcrop part.										
Hollis part----	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
[1]CrD:										
Charlton part--	B	None--------	---	---	>6.0	---	---	>60	---	Low.
Rock outcrop part.										
Hollis part----	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
Deerfield:										
De----------	B	None--------	---	---	1.0-3.0	Apparent	Dec-Apr	>60	---	Moderate.
Eldridge:										
EdB----------	C	None--------	---	---	1.0-2.0	Apparent	Jan-May	>60	---	Moderate.
Enfield:										
EnA, EnB, EnC----	B	None--------	---	---	>6.0	---	---	>60	---	Moderate.
Enosburg:										
Es----------	D	None--------	---	---	0.5-1.0	Apparent	Nov-May	>60	---	Moderate.
Gloucester:										
GfB----------	A	None--------	---	---	>6.0	---	---	>60	Hard	Low.
GhB, GhC, GxB, GxC, GxD---------	A	None--------	---	---	>6.0	---	---	>60	---	Low.
Hadley:										
Ha, HbA, HbB-----	B	Common------	Brief-----	Oct-Apr	3.0-6.0	Apparent	Nov-May	>60	---	High.
Hinckley:										
HgA, HgB, HgC, HgD, HgE---------	A	None--------	---	---	>6.0	---	---	>60	---	Low.
Holyoke:										
HoB, HoC---------	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
[1]HrC:										
Holyoke part---	C/D	None--------	---	---	>6.0	---	---	10-20	Hard	Moderate.
Rock outcrop part.										
Limerick:										
Lk----------	C	Frequent----	Brief-----	Apr-Jun	0.5-1.5	Apparent	Jan-Jun	>60	---	High.
Ludlow:										
LuB, LwB, LxB, LxC----------	C	None--------	---	---	1.5-2.0	Perched	Nov-Apr	>60	---	High.
Meckesville:										
MaB, MaC, MaD, MbB, MbC, MbD, McB, McC, McD----	C	None--------	---	---	2.5-3.5	Perched	Nov-Apr	>60	---	Moderate.
Merrimac:										
MeA, MeB, MeC, MeD----------	A	None--------	---	---	>6.0	---	---	>60	---	Low.
Montauk:										
MmB----------	C	None--------	---	---	2-3	Perched	Apr-May	>60	---	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
Montauk: MnB, MnC	C	None	---	---	2-3	Perched	Apr-May	>60	---	Moderate.
Muck,deep: Mu	D	Frequent	Very long	Nov-Jun	+1-1.0	Apparent	Sep-Jun	>60	---	High.
Muck,shallow: Mx	D	Frequent	Very long	Nov-Jun	+1-1.0	Apparent	Sep-Jun	>60	---	High.
Narragansett: NaB, NaC, NbB, NbC, NcB, NcC, NcD	B	None	---	---	>6.0	---	---	>60	---	Moderate.
Ninigret: Ng	B	None	---	---	1.5-3.5	Apparent	Nov-Apr	>60	---	Moderate.
Paxton: PaB, PaC, PbB, PbC, PbD, PcB, PcC, PcD	C	None	---	---	2-3	Perched	Nov-Mar	60	Hard	Moderate.
Peat: Pe	D	Frequent	Very long	Nov-Jun	+1-1.0	Apparent	Sep-Jun	>60	---	High.
Podunk: Po	B	Frequent	Brief	Nov-May	1.5-3.0	Apparent	Nov-May	>60	---	Moderate.
Pollux: PuA, PuB, PuC	C	None	---	---	>6.0	---	---	>60	---	Low.
Raynham: Ra	C	None	---	---	0.5-2.0	Apparent	Nov-Jun	>60	---	High.
Ridgebury: Rd, ReA, ReB	C	None	---	---	0-1.5	Perched	Nov-May	>60	---	High.
Rock outcrop: Rf.										
[1]RHD: Rock outcrop part.										
Holyoke part	C/D	None	---	---	>6.0	---	---	10-20	Hard	Moderate.
[1]RHE: Rock outcrop part.										
Holyoke part	C/D	None	---	---	>6.0	---	---	10-20	Hard	Moderate.
Rumney: Ru	C	Frequent	Brief	Nov-May	0-1.5	Apparent	Nov-Jun	>60	---	High.
Saco Variant: Sa	D	Frequent	Brief	Nov-Apr	0-0.5	Apparent	Oct-Jun	>60	---	High.
Scantic Variant: Sc	C	None	---	---	0-1.5	Perched	Oct-Jun	>60	---	High.
Scarboro: Se	D	Rare	---	---	0-1.0	Apparent	Oct-Jul	>60	---	High.
Scituate: SgB, ShB	C	None	---	---	1.0-3.0	Perched	Dec-Apr	>60	---	Moderate.
Sudbury: SrB	B	None	---	---	1.0-3.0	Apparent	Dec-Apr	>60	---	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					Ft			In		
Suncook: Su	A	Common	Brief	Mar-May	>6.0	---	---	>60	---	Low.
Terrace escarpments: Te	B	None	---	---	>6.0	---	---	>60	---	Moderate.
Unadilla: UaB, UaC	B	None	---	---	>6.0	---	---	>60	---	Moderate.
Urban land: Ub.										
[1]UH: Urban land part.										
Hadley part	B	Common	Brief	Oct-Apr	3.0-6.0	Apparent	Nov-May	>60	---	High.
Winooski part	B	Common	Brief	Sep-Apr	1.0-3.0	Apparent	Dec-Apr	>60	---	High.
[1]UK: Urban land part.										
Hinckley part	A	None	---	---	>6.0	---	---	>60	---	Low.
Windsor part	A	None	---	---	>6.0	---	---	>60	---	Low.
[1]UW: Urban land part.										
Wethersfield part	C	None	---	---	2-3	Perched	Nov-Apr	>60	---	Moderate.
Paxton part	C	None	---	---	2-3	Perched	Nov-Mar	60	Hard	Moderate.
Wareham: Wa	C	None	---	---	0-1.5	Apparent	Sep-Jun	>60	---	Moderate.
Wethersfield: WeB, WeC, WfB, WfC, WfD, WgB, WgC, WgD	C	None	---	---	2-3	Perched	Nov-Apr	>60	---	Moderate.
Whitman: WhA	D	None	---	---	0.0-0.5	Perched	Sep-Jun	>60	---	High.
Wilbraham: WmA, WmB	C	None	---	---	0.5-1.5	Perched	Nov-Apr	>60	---	High.
Windsor: WnA, WnB, WnC, WnD, WnE	A	None	---	---	>6.0	---	---	>60	---	Low.
Winooski: Wo	B	Common	Brief	Sep-Apr	1.0-3.0	Apparent	Dec-Apr	>60	---	High.
Woodbridge: WrA, WrB, WsB, WsC, WtB, WtC, WtD	C	None	---	---	1.5-3.0	Perched	Nov-Mar	>60	Hard	High.

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics of this taxadjunct that are outside the range of the series]

Soil name	Family or higher taxonomic class
Agawam	Coarse-loamy over sandy or sandy skeletal, mixed, mesic Typic Dystrochrepts
Amostown	Coarse-loamy, mixed, mesic Typic Dystrochrepts
*Belgrade	Coarse-silty, mixed, mesic Aquic Dystric Eutrochrepts
Brimfield	Loamy, mixed, mesic Lithic Dystrochrepts
*Broadbrook	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Brookfield	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Buxton Variant	Coarse-silty over clayey mixed, mesic Aquic Dystrochrepts
Carver	Mixed, mesic Typic Udipsamments
Charlton	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Deerfield	Mixed, mesic Aquic Udipsamments
Eldridge	Sandy over loamy, mixed, nonacid, mesic Aquic Udorthents
Enfield	Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts
*Enosburg	Sandy over loamy, mixed, nonacid, frigid Mollic Haplaquents
Gloucester	Sandy-skeletal, mixed, mesic Typic Dystrochrepts
Hadley	Coarse-silty, mixed, nonacid, mesic Typic Udifluvents
Hinckley	Sandy-skeletal, mixed, mesic Typic Udorthents
Hollis	Loamy, mixed, mesic Lithic Dystrochrepts
Holyoke	Loamy, mixed, mesic Lithic Dystrochrepts
Limerick	Coarse-silty, mixed, nonacid, mesic Typic Fluvaquents
Ludlow	Coarse-loamy, mixed, mesic Typic Fragiochrepts
*Meckesville	Fine-loamy, mixed, mesic Typic Fragiudults
Merrimac	Sandy, mixed, mesic Typic Dystrochrepts
Montauk	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Muck,deep	Typic Medisaprists: Typic Medihemists: Fibric Medisaprists
Muck,shallow	Terric Medisaprists; Terric Medihemists
Narragansett	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Ninigret	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Aquic Dystrochrepts
Paxton	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Peat	Typic Medifibrists; Hemic Medifibrists
Podunk	Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Pollux	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Raynham	Coarse-silty, mixed, nonacid, mesic Aeric Haplaquepts
Ridgebury	Coarse-loamy, mixed, mesic Aeric Fragiaquepts
Rumney	Coarse-loamy, mixed, acid, mesic Typic Fluvaquents
Saco Variant	Coarse-silty, mixed, nonacid, mesic Aeric Fluvaquents
Scantic Variant	Coarse-silty over clayey, mixed, nonacid, mesic Typic Haplaquepts
*Scarboro	Sandy, mixed, mesic Histic Humaquepts
Scituate	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Sudbury	Sandy, mixed, mesic Aquic Dystrochrepts
Suncook	Mixed, mesic Typic Udipsamments
Terrace escarpments	Typic Udorthents
Unadilla	Coarse-silty, mixed, mesic Typic Dystrochrepts
Wareham	Mixed, mesic Mollic Psammaquents
Wethersfield	Coarse-loamy, mixed, mesic Typic Fragiochrepts
Whitman	Coarse-loamy, mixed, mesic Typic Fragiaquepts
*Wilbraham	Coarse-loamy, mixed, mesic Aquic Fragiochrepts
Windsor	Mixed, mesic Typic Udipsamments
Winooski	Coarse-silty, mixed, nonacid, mesic Aquic Udifluvents
Woodbridge	Coarse-loamy, mixed, mesic Typic Fragiochrepts

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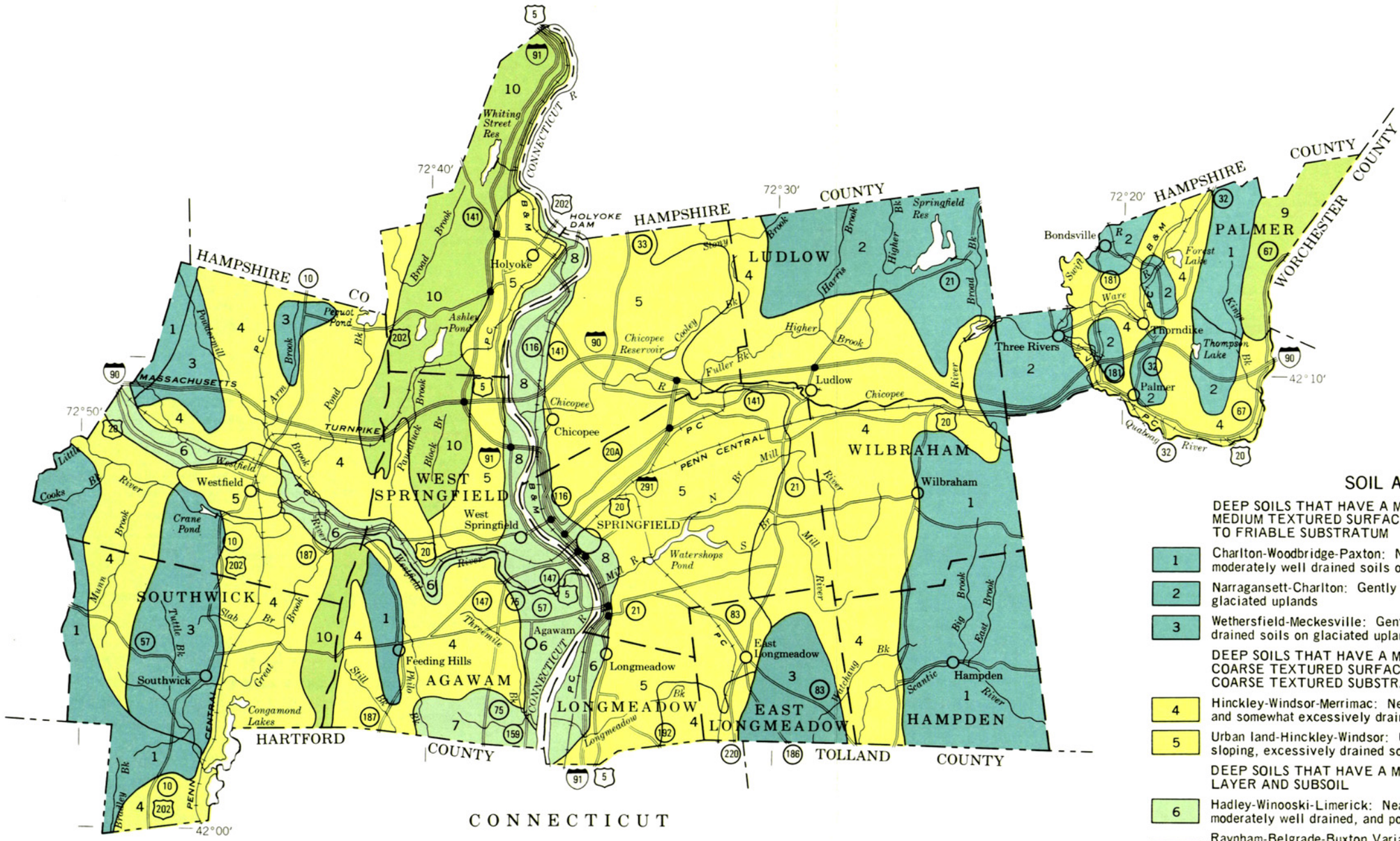


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

HAMPDEN COUNTY, MASSACHUSETTS

CENTRAL PART

Scale 1:190,080

1 0 1 2 3 4 Miles

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SOIL ASSOCIATIONS

DEEP SOILS THAT HAVE A MODERATELY COARSE TEXTURED OR MEDIUM TEXTURED SURFACE LAYER AND SUBSOIL AND A FIRM TO FRIABLE SUBSTRATUM

1 Charlton-Woodbridge-Paxton: Nearly level to steep, well drained and moderately well drained soils on glaciated uplands

2 Narragansett-Charlton: Gently sloping to steep, well drained soils on glaciated uplands

3 Wethersfield-Meckesville: Gently sloping to moderately steep, well drained soils on glaciated uplands

DEEP SOILS THAT HAVE A MODERATELY COARSE TEXTURED OR COARSE TEXTURED SURFACE LAYER AND SUBSOIL AND A LOOSE, COARSE TEXTURED SUBSTRATUM

4 Hinckley-Windsor-Merrimac: Nearly level to steep, excessively drained and somewhat excessively drained soils on glacial outwash terraces

5 Urban land-Hinckley-Windsor: Urban land and nearly level to moderately sloping, excessively drained soils on glacial outwash terraces

DEEP SOILS THAT HAVE A MEDIUM TEXTURED, FRIABLE SURFACE LAYER AND SUBSOIL

6 Hadley-Winooski-Limerick: Nearly level and gently sloping, well drained, moderately well drained, and poorly drained soils on flood plains

7 Raynham-Belgrade-Buxton Variant: Nearly level and gently sloping, moderately well drained and poorly drained soils on terraces and old lakebeds

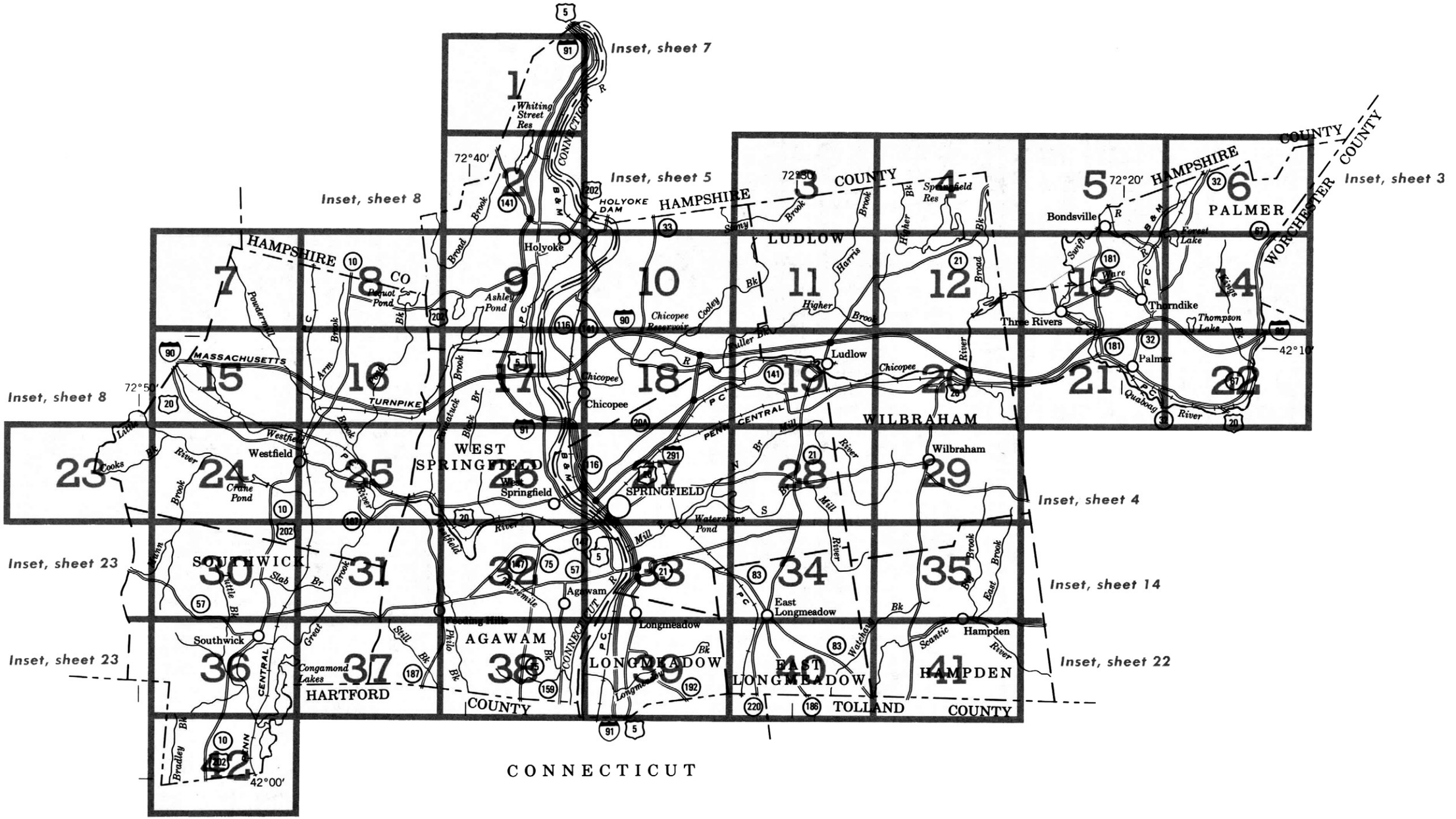
8 Urban land-Hadley-Winooski: Urban land and nearly level to gently sloping, well drained and moderately well drained soils on flood plains

SHALLOW AND DEEP SOILS THAT HAVE A MODERATELY COARSE TEXTURED OR MEDIUM TEXTURED, FRIABLE SURFACE LAYER AND SUBSOIL

9 Brookfield-Brimfield: Gently sloping to moderately steep, deep, and shallow, well drained and somewhat excessively drained soils on glaciated uplands

10 Rock outcrop-Holyoke: Rock outcrop and gently sloping to steep, shallow, somewhat excessively drained soils on glaciated uplands

Compiled 1977



CONNECTICUT

INDEX TO MAP SHEETS

HAMPDEN COUNTY, MASSACHUSETTS

CENTRAL PART

Scale 1:190,080

1 0 1 2 3 4 Miles

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined; otherwise, it is a small letter. The third letter, always a capital A, B, C, D, or E shows the slope. Most symbols without a slope letter are those of nearly level soils, but some are for miscellaneous land types or broadly defined units that have a considerable range of slope.

SYMBOL	NAME
AgA	Agawam fine sandy loam, 0 to 3 percent slopes
AgB	Agawam fine sandy loam, 3 to 8 percent slopes
AgC	Agawam fine sandy loam, 8 to 15 percent slopes
AmB	Amostown fine sandy loam, 0 to 6 percent slopes
BaB	Belgrade silt loam, 0 to 8 percent slopes
BgB	Broadbrook gravelly silt loam, 3 to 8 percent slopes
BgC	Broadbrook gravelly silt loam, 8 to 15 percent slopes
BhB	Broadbrook very stony silt loam, 3 to 8 percent slopes
BhC	Broadbrook very stony silt loam, 8 to 15 percent slopes
BhD	Broadbrook very stony silt loam, 15 to 25 percent slopes
BkB	Broadbrook extremely stony silt loam, 3 to 8 percent slopes
BkC	Broadbrook extremely stony silt loam, 8 to 15 percent slopes
BoB	Brookfield extremely stony fine sandy loam, 3 to 8 percent slopes
BoC	Brookfield extremely stony fine sandy loam, 8 to 15 percent slopes
BoD	Brookfield extremely stony fine sandy loam, 15 to 25 percent slopes
BrC	Brookfield-Rock outcrop-Brimfield complex, 3 to 15 percent slopes
BrD	Brookfield-Rock outcrop-Brimfield complex, 15 to 25 percent slopes
BuB	Buxton Variant silt loam, 0 to 8 percent slopes
CaA	Carver loamy coarse sand, 0 to 3 percent slopes
CaB	Carver loamy coarse sand, 3 to 8 percent slopes
CaC	Carver loamy coarse sand, 8 to 15 percent slopes
CkB	Charlton fine sandy loam, 3 to 8 percent slopes
CkC	Charlton fine sandy loam, 8 to 15 percent slopes
CmB	Charlton very stony fine sandy loam, 3 to 8 percent slopes
CmC	Charlton very stony fine sandy loam, 8 to 15 percent slopes
CmD	Charlton very stony fine sandy loam, 15 to 25 percent slopes
CnB	Charlton extremely stony fine sandy loam, 3 to 8 percent slopes
CnC	Charlton extremely stony fine sandy loam, 8 to 15 percent slopes
CnD	Charlton extremely stony fine sandy loam, 15 to 25 percent slopes
COE	Charlton and Narragansett extremely stony soils, steep *
CpB	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes
CpC	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes
CrC	Charlton-Rock outcrop-Hollis complex, 3 to 15 percent slopes
CrD	Charlton-Rock outcrop-Hollis complex, 15 to 25 percent slopes
De	Deerfield loamy fine sand
EdB	Eldridge loamy sand, 0 to 6 percent slopes
EnA	Enfield silt loam, 0 to 3 percent slopes
EnB	Enfield silt loam, 3 to 8 percent slopes
EnC	Enfield silt loam, 8 to 15 percent slopes
Es	Enosburg loamy sand
GfB	Gloucester sandy loam, 3 to 8 percent slopes
GhB	Gloucester very stony sandy loam, 3 to 8 percent slopes
GhC	Gloucester very stony sandy loam, 8 to 15 percent slopes
GxB	Gloucester extremely stony sandy loam, 3 to 8 percent slopes
GxC	Gloucester extremely stony sandy loam, 8 to 15 percent slopes
GxD	Gloucester extremely stony sandy loam, 15 to 25 percent slopes
Ha	Hadley very fine sandy loam
HbA	Hadley very fine sandy loam, high bottom, 0 to 3 percent slopes
HbB	Hadley very fine sandy loam, high bottom, 3 to 6 percent slopes
HgA	Hinckley loamy sand, 0 to 3 percent slopes
HgB	Hinckley loamy sand, 3 to 8 percent slopes
HgC	Hinckley loamy sand, 8 to 15 percent slopes
HgD	Hinckley loamy sand, 15 to 25 percent slopes
HgE	Hinckley loamy sand, 25 to 35 percent slopes
HoB	Holyoke very fine sandy loam, 3 to 8 percent slopes
HoC	Holyoke very fine sandy loam, 8 to 15 percent slopes
HrC	Holyoke-Rock outcrop complex, 3 to 15 percent slopes
Lk	Limerick silt loam
LuB	Ludlow loam, 3 to 8 percent slopes
LwB	Ludlow very stony loam, 0 to 8 percent slopes
LxB	Ludlow extremely stony loam, 0 to 8 percent slopes
LxC	Ludlow extremely stony loam, 8 to 15 percent slopes
MaB	Meckesville loam, 3 to 8 percent slopes
MaC	Meckesville loam, 8 to 15 percent slopes
MaD	Meckesville loam, 15 to 25 percent slopes
MbB	Meckesville very stony loam, 3 to 8 percent slopes
MbC	Meckesville very stony loam, 8 to 15 percent slopes
MbD	Meckesville very stony loam, 15 to 25 percent slopes
McB	Meckesville extremely stony loam, 3 to 8 percent slopes
McC	Meckesville extremely stony loam, 8 to 15 percent slopes
McD	Meckesville extremely stony loam, 15 to 25 percent slopes
MeA	Merrimac sandy loam, 0 to 3 percent slopes
MeB	Merrimac sandy loam, 3 to 8 percent slopes
MeC	Merrimac sandy loam, 8 to 15 percent slopes
MeD	Merrimac sandy loam, 15 to 25 percent slopes
MmB	Montauk fine sandy loam, 3 to 8 percent slopes
MnB	Montauk extremely stony fine sandy loam, 3 to 8 percent slopes
MnC	Montauk extremely stony fine sandy loam, 8 to 15 percent slopes
Mu	Muck, deep
Mx	Muck, shallow
NaB	Narragansett very fine sandy loam, 3 to 8 percent slopes
NaC	Narragansett very fine sandy loam, 8 to 15 percent slopes
NbB	Narragansett very stony very fine sandy loam, 3 to 8 percent slopes
NbC	Narragansett very stony very fine sandy loam, 8 to 15 percent slopes
NcB	Narragansett extremely stony very fine sandy loam, 3 to 8 percent slopes
NcC	Narragansett extremely stony very fine sandy loam, 8 to 15 percent slopes
NcD	Narragansett extremely stony very fine sandy loam, 15 to 25 percent slopes
Ng	Ninigret fine sandy loam, 0 to 6 percent slopes
PaB	Paxton fine sandy loam, 3 to 8 percent slopes
PaC	Paxton fine sandy loam, 8 to 15 percent slopes
PbB	Paxton very stony fine sandy loam, 3 to 8 percent slopes
PbC	Paxton very stony fine sandy loam, 8 to 15 percent slopes
PbD	Paxton very stony fine sandy loam, 15 to 25 percent slopes
PcB	Paxton extremely stony fine sandy loam, 3 to 8 percent slopes
PcC	Paxton extremely stony fine sandy loam, 8 to 15 percent slopes
PcD	Paxton extremely stony fine sandy loam, 15 to 25 percent slopes
Pe	Peat
Po	Podunk fine sandy loam
PuA	Pollux fine sandy loam, 0 to 3 percent slopes
PuB	Pollux fine sandy loam, 3 to 8 percent slopes
PuC	Pollux fine sandy loam, 8 to 15 percent slopes
Ra	Raynham silt loam
Rd	Ridgebury sandy loam
ReA	Ridgebury extremely stony sandy loam, 0 to 3 percent slopes
ReB	Ridgebury extremely stony sandy loam, 3 to 8 percent slopes
Rf	Rock outcrop
RHD	Rock outcrop-Holyoke complex, sloping *
RHE	Rock outcrop-Holyoke complex, steep *
Ru	Rumney fine sandy loam
Sa	Saco Variant silt loam
Sc	Scantic Variant silt loam
Se	Scarboro fine sandy loam
SgB	Scituate fine sandy loam, 3 to 8 percent slopes
ShB	Scituate extremely stony fine sandy loam, 3 to 8 percent slopes
SrB	Sudbury fine sandy loam, 0 to 8 percent slopes
Su	Suncook loamy fine sand, 0 to 5 percent slopes
Te	Terrace escarpments
UaB	Unadilla very fine sandy loam, 3 to 8 percent slopes
UaC	Unadilla very fine sandy loam, 8 to 15 percent slopes
Ub	Urban land
UH	Urban land-Hadley-Winooski association *
UK	Urban land-Hickley-Windsor association *
UW	Urban land-Wethersfield-Paxton association *
Wa	Wareham loamy sand
WeB	Wethersfield fine sandy loam, 3 to 8 percent slopes
WeC	Wethersfield fine sandy loam, 8 to 15 percent slopes
WfB	Wethersfield very stony fine sandy loam, 3 to 8 percent slopes
WfC	Wethersfield very stony fine sandy loam, 8 to 15 percent slopes
WfD	Wethersfield very stony fine sandy loam, 15 to 25 percent slopes
WgB	Wethersfield extremely stony fine sandy loam, 3 to 8 percent slopes
WgC	Wethersfield extremely stony fine sandy loam, 8 to 15 percent slopes
WgD	Wethersfield extremely stony fine sandy loam, 15 to 25 percent slopes
WhA	Whitman extremely stony loam, 0 to 3 percent slopes
WmA	Wilbraham extremely stony silt loam, 0 to 3 percent slopes
WmB	Wilbraham extremely stony silt loam, 3 to 8 percent slopes
WnA	Windsor loamy sand, 0 to 3 percent slopes
WnB	Windsor loamy sand, 3 to 8 percent slopes
WnC	Windsor loamy sand, 8 to 15 percent slopes
WnD	Windsor loamy sand, 15 to 25 percent slopes
WnE	Windsor loamy sand, 25 to 35 percent slopes
Wo	Winooski silt loam
WrA	Woodbridge fine sandy loam, 0 to 3 percent slopes
WrB	Woodbridge fine sandy loam, 3 to 8 percent slopes
WsB	Woodbridge very stony fine sandy loam, 0 to 8 percent slopes
WsC	Woodbridge very stony fine sandy loam, 8 to 15 percent slopes
WtB	Woodbridge extremely stony fine sandy loam, 0 to 8 percent slopes
WtC	Woodbridge extremely stony fine sandy loam, 8 to 15 percent slopes
WtD	Woodbridge extremely stony fine sandy loam, 15 to 25 percent slopes

* The composition of these units is more variable than others in the survey area, but has been controlled well enough to be interpreted for the expected uses of the soils.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

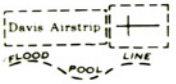
CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool



STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

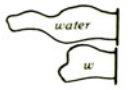
FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small



PITS

- Gravel pit

- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)

- Located object (label)

- Tank (label)

- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label)

  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial

- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot
- Areas of stripped lands top soil and subsoil removed, 6 acres or less

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 1

HAMPDEN COUNTY, MASSACHUSETTS NO. 1

This map is compiled on 1978 aerial photography by the U. S. Department of Agriculture Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

285 000 FEET

465 000 FEET

(Joins inset, sheet 7)

Ub

RHE

CmC

WnB

Wa

BaB

HgC

BkC

Rf

HrC

Goat Peak

RHD

Mu

RESERVATION

STATE

Lake Bray

91

CnB

Wo

HbA

Smiths Ferry

5

MOUNT TOM

RANGE

HAMPSHIRE COUNTY

H O L Y O K E

MTSR

G.P.

QUARRY

Ski Area

UW

WhB

CnD

CnC

Whiting Street Reservoir

MAINE

BOSTON AND

CONNECTICUT RIVER

HAMPSHIRE COUNTY

(Joins inset, sheet 7)

(Joins sheet 2)

455 000 FEET

300 000 FEET

1

N

1 Mile

5 000 Feet

0

Scale 1:15 840

¼

½

¾

1

1 000

2 000

3 000

4 000

5 000

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HAMPDEN COUNTY, MASSACHUSETTS NO. 10

HAMPDEN COUNTY, MASSACHUSETTS NO. 11

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HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 12

12

N

1 Mile

5 000 Feet

Scale 1:15 840

355 000 FEET

440 000 FEET

430 000 FEET

340 000 FEET

(Joins sheet 4)

(Joins sheet 11)

(Joins sheet 20)

(Joins sheet 13)

Springfield Reservoir

Minechoag Mountain

LUDLOW STATE PARK

CHICOPEE RIVER

Higher Brook

Broad Brook

HAMPSHIRE COUNTY

PALMER

WILBRAHAM

LUDLOW

GRAVEL PIT

water

COE

RHE

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HAMPDEN COUNTY, MASSACHUSETTS NO. 12

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 13

13

N

Scale 1:15 840

1 Mile

5 000 Feet

0 1000 2000 3000 4000 5000

0 ¼ ½ ¾

HAMPDEN COUNTY, MASSACHUSETTS NO. 13

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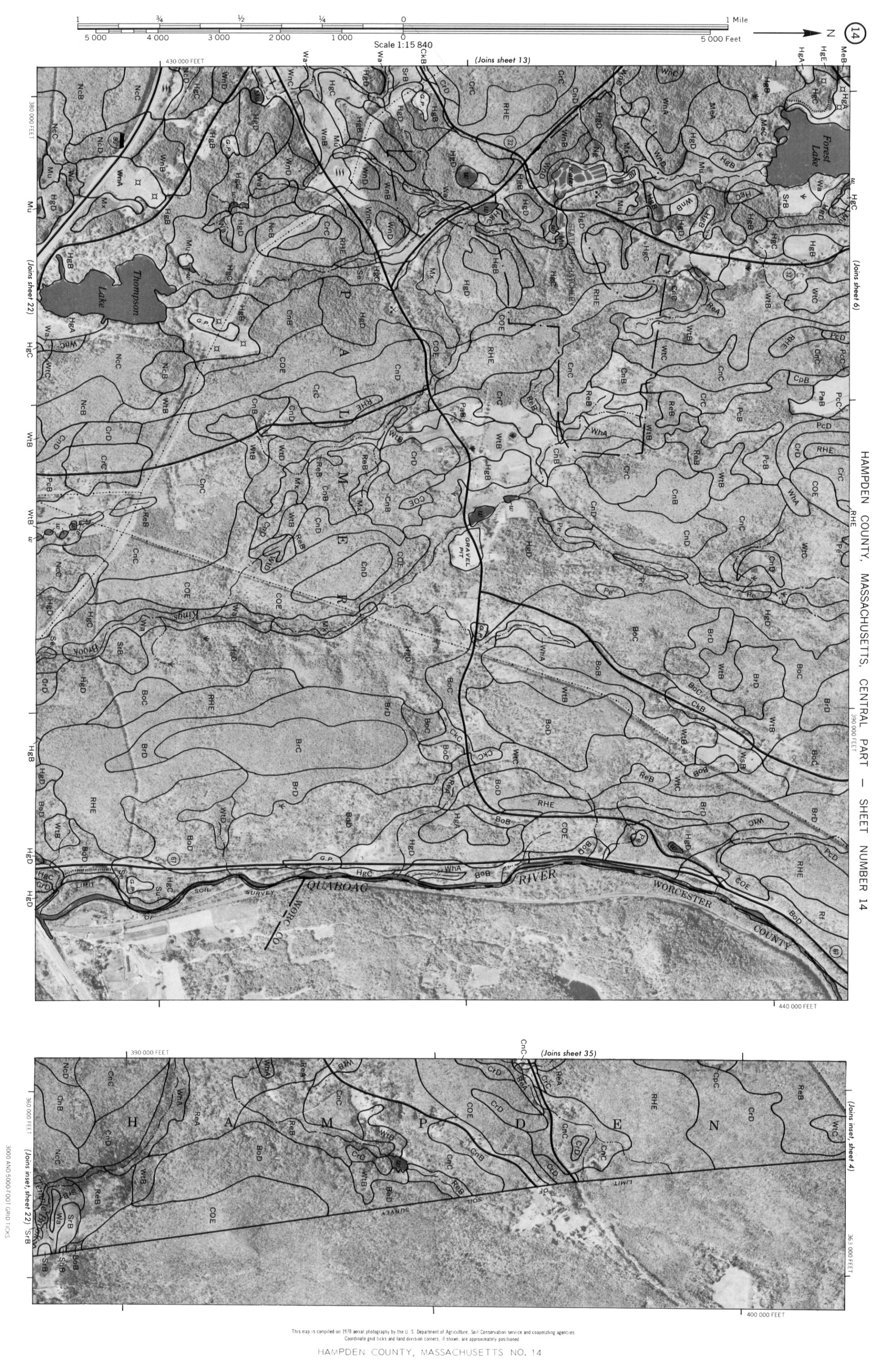

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3000 AND 5000-FOOT GRID TICKS

HAMPDEN COUNTY, MASSACHUSETTS NO. 14

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 15

HAMPDEN COUNTY, MASSACHUSETTS NO. 15

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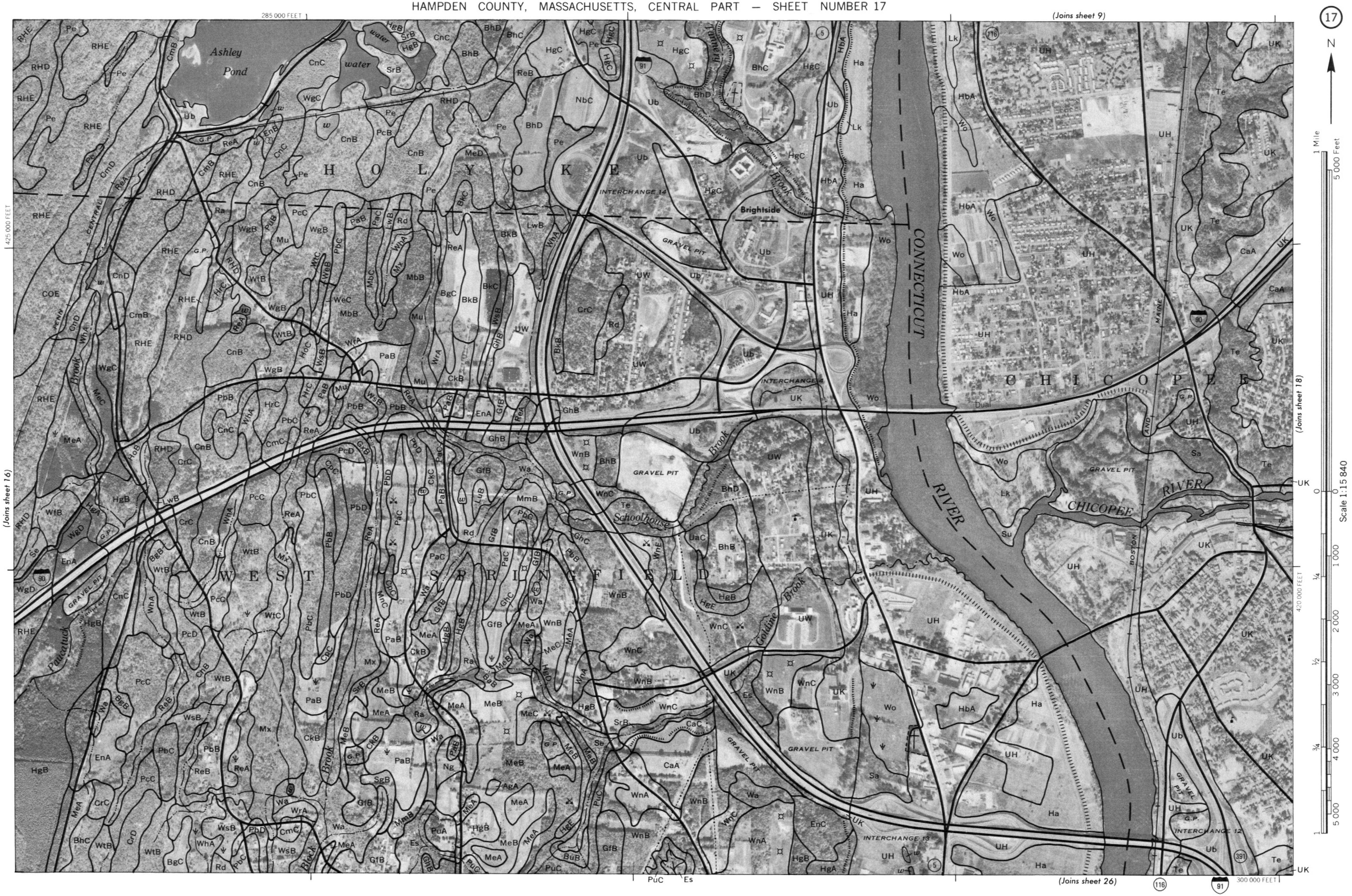
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 17



HAMPDEN COUNTY, MASSACHUSETTS NO. 17

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 19

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NO. 19

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture. Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

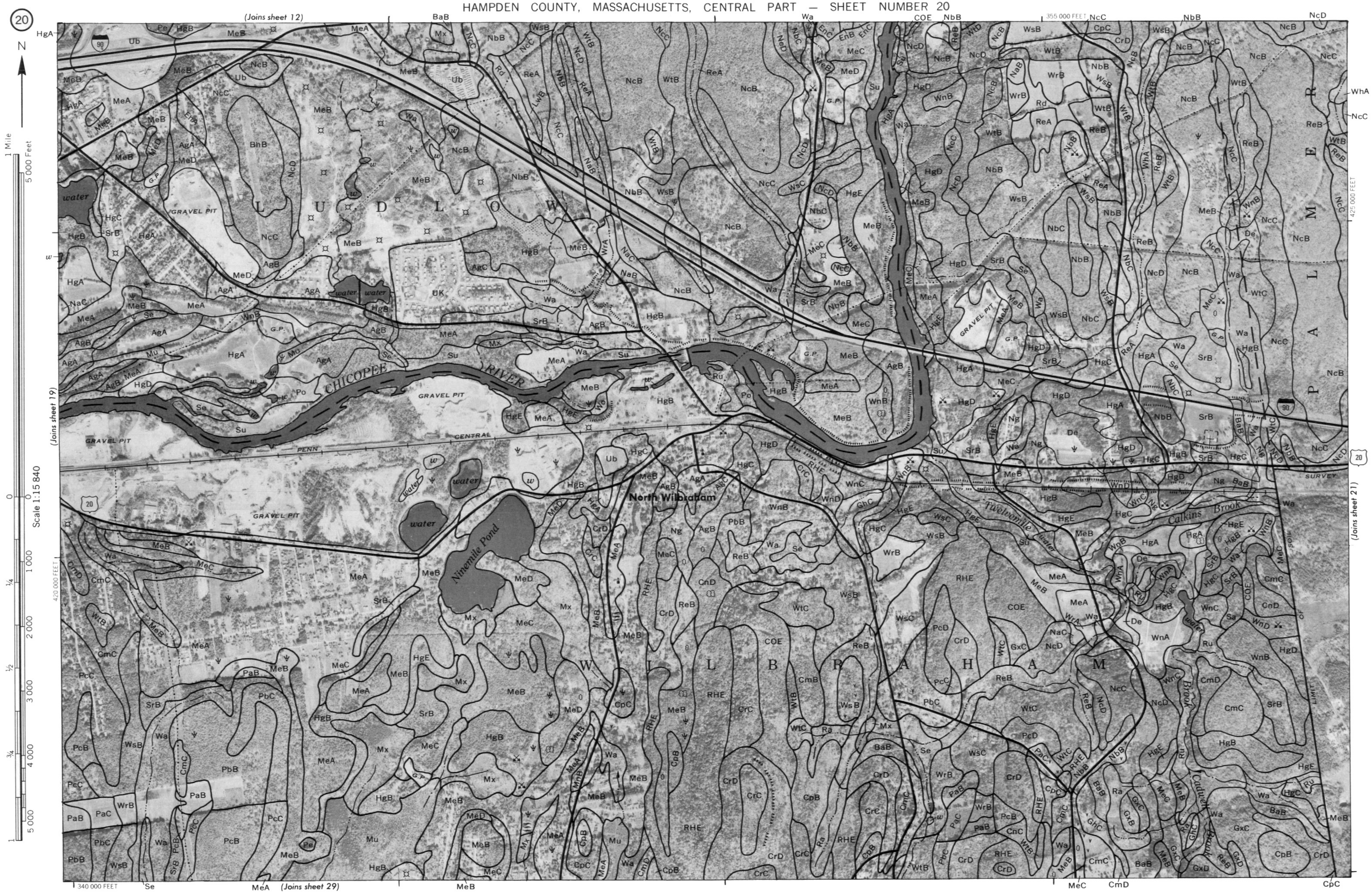
(Joins sheet 18)
(Joins sheet 11)
(Joins sheet 20)
(Joins sheet 28)

CHICOPEE
LUDLOW
WILBRAHAM
SPRINGFIELD
CHICOPEE RIVER
PENN CENTRAL
Indian Orchard
Fiberloid
Long Pond
Lake Lorraine
Mona Lake
Fivemile Pond
Loon Pond
Bliss Pond
GRAVEL PIT
CEMETERY
INTERCHANGE 7
North Branch Mill River

AgB 325 000 FEET
425 000 FEET
420 000 FEET
335 000 FEET

19
N
1 Mile
5 000 Feet
Scale 1:15 840

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 20

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 21

HAMPDEN COUNTY, MASSACHUSETTS NO. 21

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

360 000 FEET

425 000 FEET

415 000 FEET

375 000 FEET

(Joins sheet 20)

(Joins sheet 13)

(Joins sheet 22)

21

N

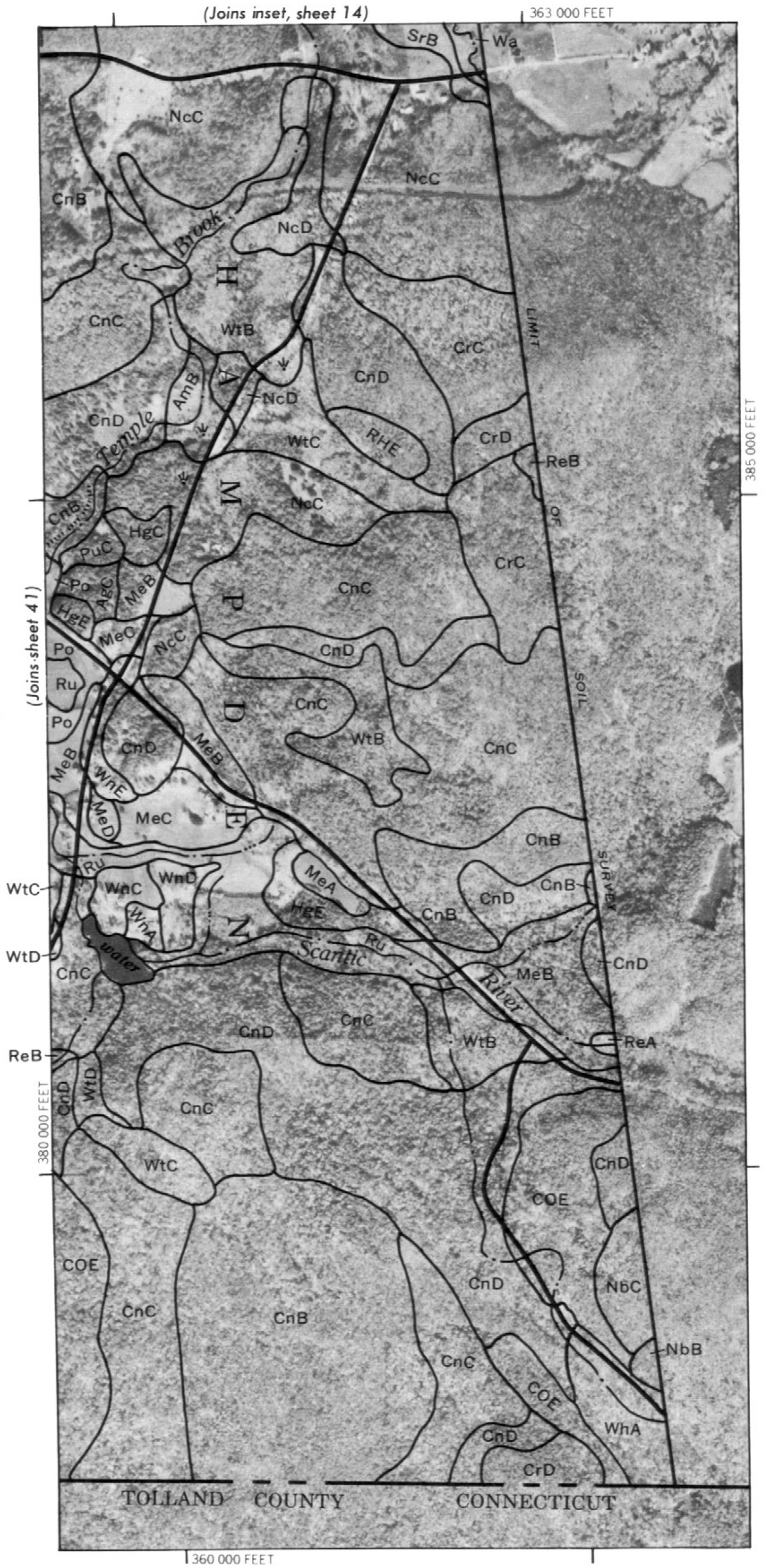
1 Mile

5 000 Feet

Scale 1:15 840

0 0 ¼ ½ ¾ 1

1 000 2 000 3 000 4 000 5 000



3000 AND 5000-FOOT GRID TICKS

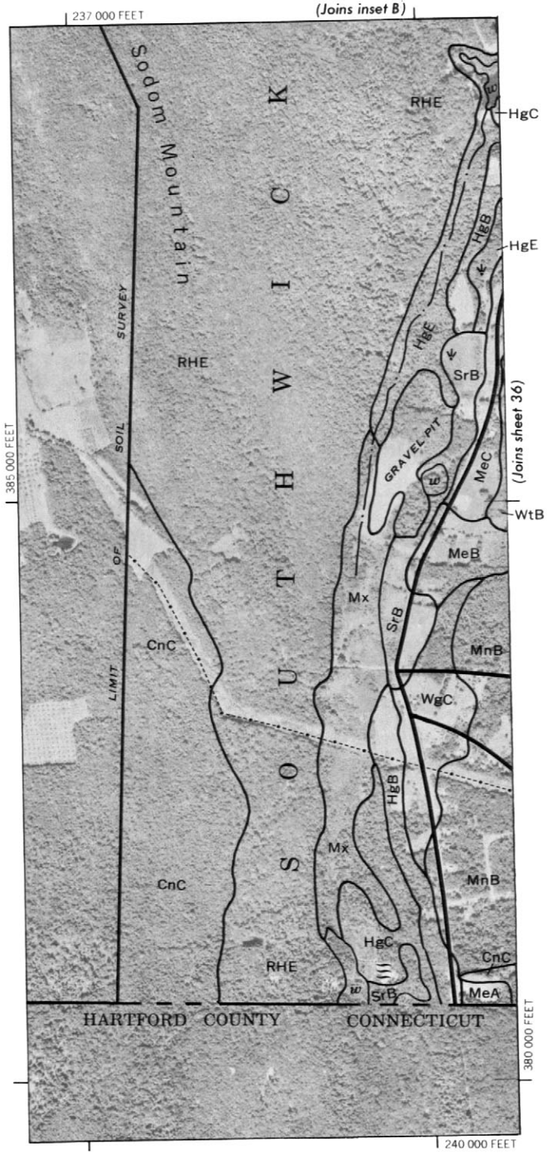
This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 23

HAMPDEN COUNTY, MASSACHUSETTS, NO. 23

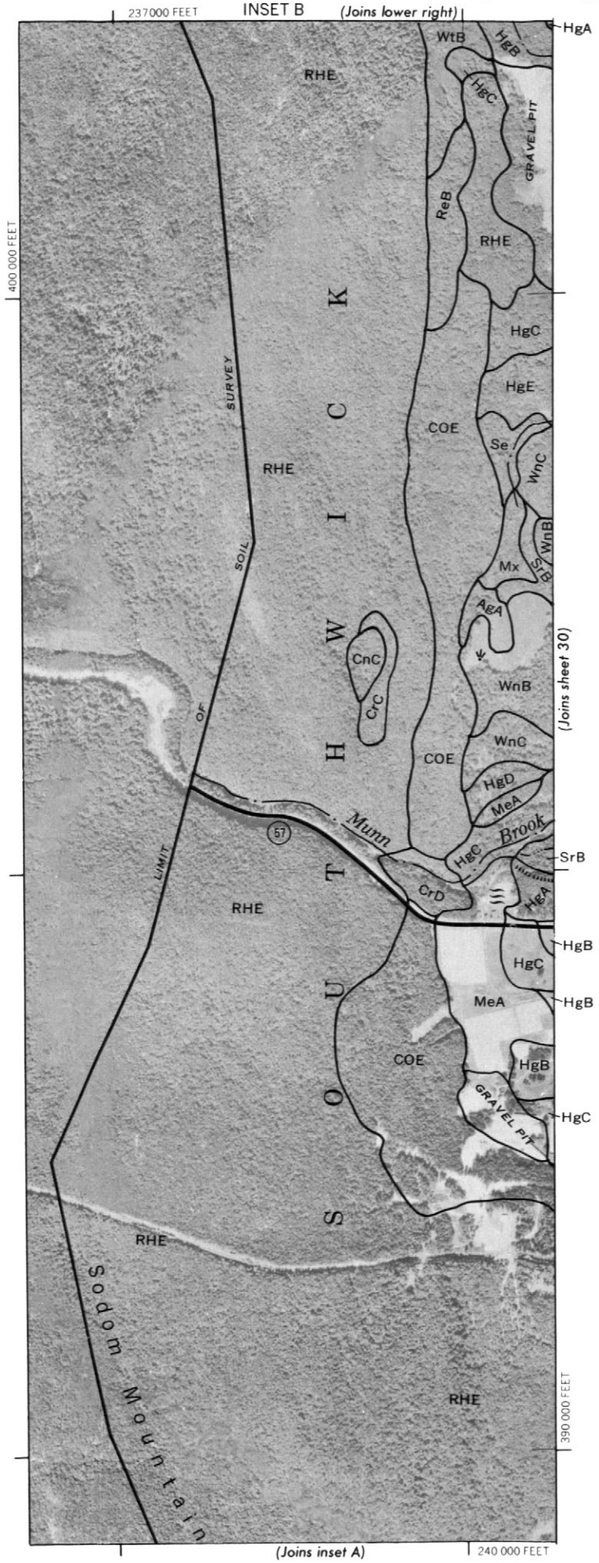
This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

INSET A



3000 AND 5000-FOOT GRID TICKS

INSET B



3000 AND 5000-FOOT GRID TICKS

23

N

1 Mile

5 000 Feet

Scale 1:15 840

0 1/4 1/2 3/4 1

0 1 000 2 000 3 000 4 000 5 000

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 25

HAMPDEN COUNTY, MASSACHUSETTS NO. 25

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

265 000 FEET

415 000 FEET

(Joins sheet 16)

(Joins sheet 24)

(Joins sheet 26)

(Joins sheet 31)

405 000 FEET

280 000 FEET

25

N

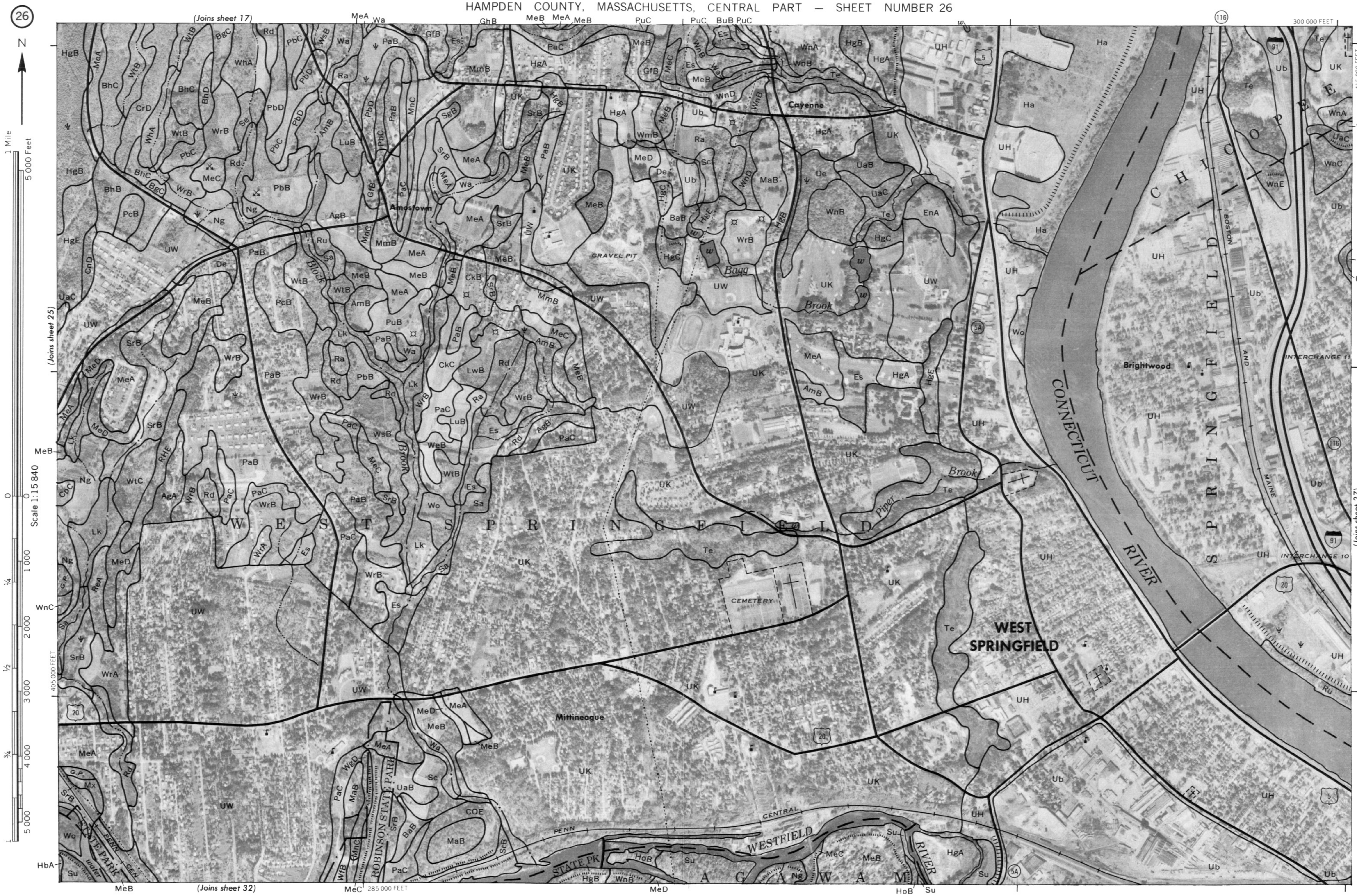
1 Mile

5 000 Feet

Scale 1:15 840

0 0 1 000 2 000 3 000 4 000 5 000

¼ ½ ¾ 1



This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 29

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 3
This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 30

30

(Joins sheet 24) COE Ng WnC Po

260 000 FEET

400 000 FEET

N

1 Mile

5 000 Feet

Scale 1:15 840

(Joins inset B, sheet 23)

(Joins sheet 31)

(Joins sheet 36)

390 000 FEET

245 000 FEET

GRAVEL PIT

WESTFIELD

SOUTHWICK

TOLLAND

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

HAMPDEN COUNTY, MASSACHUSETTS NO. 30

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 31

HAMPDEN COUNTY, MASSACHUSETTS, SHEET NO. 31

This map is compiled on 1978 aerial photography by the U.S. Department of Agriculture Soil Conservation service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

265 000 FEET
400 000 FEET
280 000 FEET
390 000 FEET

(Joins sheet 30)
(Joins sheet 25)
(Joins sheet 32)
(Joins sheet 37)

WESTFIELD
SOUTHWICK
GRANVILLE
MOUNTAIN
PROVIN
AGAWAM
ROBINSON STATE PARK
FEEDING HILLS
Hosmer Corner
Johnson Corner
Kellog Brook
Great Brook
Stab Brook
Credit Brook
CENTRAL
GRAVEL PIT
QUARRY
G.P.

31
N

1 Mile
5 000 Feet

Scale 1:15 840

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 32

32

N

1 Mile

5 000 Feet

Scale 1:15 840

(Joins sheet 26)

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 38)

300 000 FEET

400 000 FEET

380 000 FEET

285 000 FEET

WEST SPRINGFIELD

AGAWAM

North Agawam

West Agawam

Suffield Corner

O'Briens Corner

PENN CENTRAL

WESTFIELD STATE PARK

WESTFIELD RIVER

ROBINSON

Miller Brook

Thrumpike

Brook

Silver Lake

GRAVEL PIT

AGAWAM

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 32

N

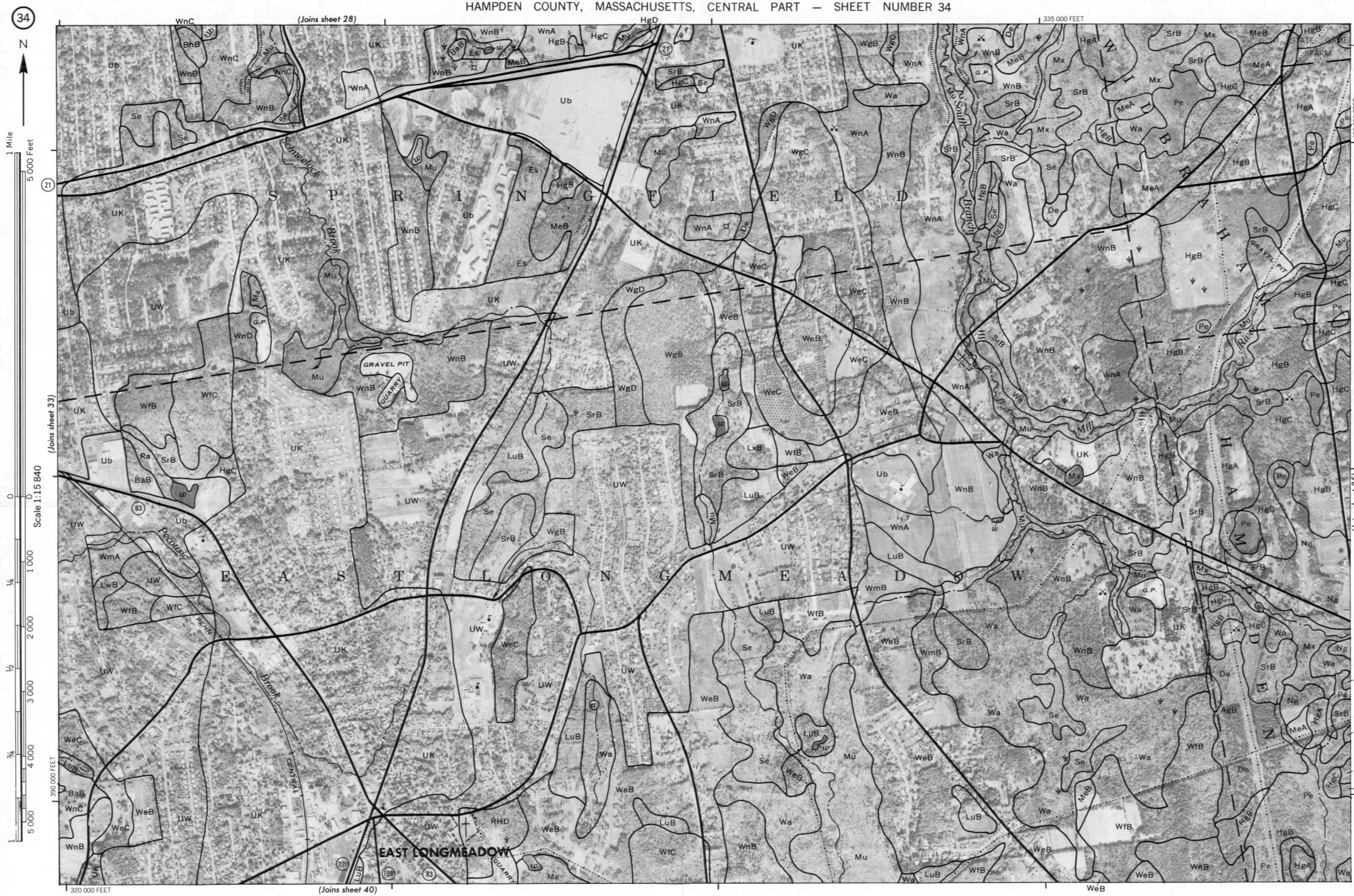
Scale 1:15 840

1 Mile | ¾ | ½ | ¼ | 0

5 000 Feet | 4 000 | 3 000 | 2 000 | 1 000 | 0

HAMPDEN COUNTY, MASSACHUSETTS NO. 33

This map is compiled on 19.. aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 35

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

(Joins sheet 30)

260 000 FEET

N

1 Mile

5 000 Feet

Scale 1:15 840

0 ¼ ½ ¾ 1

0 1 000 2 000 3 000 4 000 5 000

380 000 FEET

385 000 FEET

(Joins inset A, sheet 23)

(Joins sheet 37)

(Joins sheet 42)

245 000 FEET

MeA

HgA

Southwick

Brook

Johnson Brook

Tuttle Brook

Great Brook

Pearl Brook

Water

GRAVEL PIT

CENTRAL

PENN

North Pond

CONGAMOND LAKES

Middle Pond

Viming Hill

Gillett Corner

CONNECTICUT

HARTFORD COUNTY

SOUTHWICK

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture. Soil Conservation service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 37

37

N

1 Mile

5 000 Feet

Scale 1:15 840

HAMPDEN COUNTY, MASSACHUSETTS NO. 37

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

(Joins sheet 31)

(Joins sheet 36)

(Joins sheet 38)

265 000 FEET

285 000 FEET

280 000 FEET

380 000 FEET

SOUTHWICK

AGAWAM

HARTFORD COUNTY

CONNECTICUT

Shea Corner

Great Brook

Shill Brook

water

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 38

HAMPDEN COUNTY, MASSACHUSETTS NO. 38

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 39

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 41

41

HAMPDEN COUNTY, MASSACHUSETTS NO. 41

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture. Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

340 000 FEET

385 000 FEET

355 000 FEET

380 000 FEET

N

1 Mile

5 000 Feet

Scale 1:15 840

(Joins sheet 35)

(Joins sheet 40)

(Joins inset, sheet 22)

HAMPDEN

TOLLAND COUNTY

CONNECTICUT

Pine Mountain

Scantic River

Minnechaug Mountain

HAMPDEN COUNTY, MASSACHUSETTS, CENTRAL PART — SHEET NUMBER 42

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS, NO. 42

HAMPDEN COUNTY, MASSACHUSETTS NO. 5

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5

N

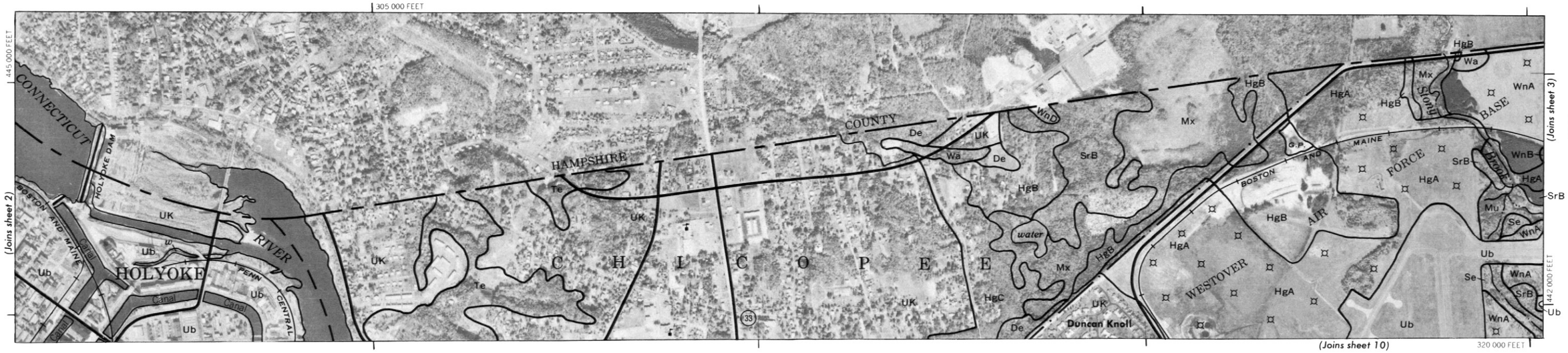
1 Mile

5,000 Feet

Scale 1:15 840

305 000 FEET

445 000 FEET



3000 AND 5000-FOOT GRID TICKS

365 000 FEET

445 000 FEET

3000 AND 5000-FOOT GRID TICKS

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 6

HAMPDEN COUNTY, MASSACHUSETTS NO. 7

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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

HAMPDEN COUNTY, MASSACHUSETTS NO. 9

This map is compiled on 1970 aerial photography by the U. S. Department of Agriculture, Soil Conservation service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

285 000 FEET

440 000 FEET

(Joins sheet 2)

(Joins sheet 8)

(Joins sheet 10)

(Joins sheet 17)

300 000 FEET

430 000 FEET

HOLYOKE

Oakdale

ELMWOOD PARK

Elmwood

Springdale

Willimansett

CHICOPEE

Rock Valley

EAST MOUNTAIN

HOLYOKE

McLean Reservoir

Wright Pond

Ashley Pond

INTERCHANGE 16

INTERCHANGE 15

CONNECTICUT RIVER

CENTRAL VERMONT

PENN CENTRAL

BOSTON AND MAINE

Canal

water

GRAVEL PIT

COE

9

N

1 Mile

5 000 Feet

Scale 1:15 840